Rec'd Apr. 5 '39

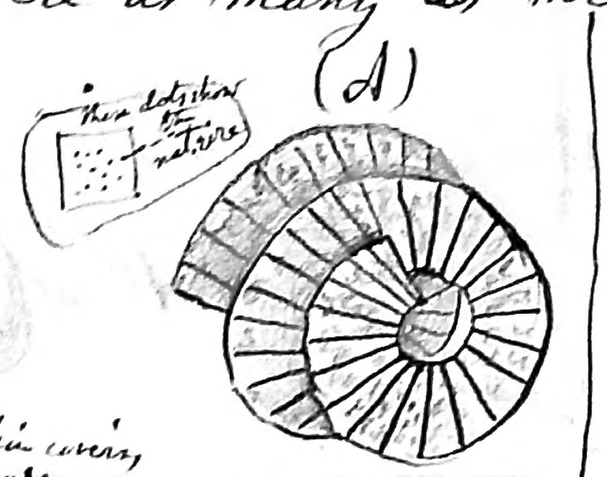
West Point. April 2. 1839

Dear Sir

CORRESPONDENCE
ILLUSTRATIONS
COLUMBIA UNIVERSITY.

I received your Algae in good order by the Coop, and also your letter from Princeton for both of which many thanks. Is it possible that your collection shows all that has been done for American "Algology"? If so; then I have still more inducement to pursue a study which has already afforded me so much pleasure. I find now all the charms of novelty which render botanising in new countries so pleasing, and this pleasure I can obtain without perilling life or health in savage regions, and without giving up the comforts of civilization ~~or~~ and, above all, the thousand pleasures which a beloved family and home can furnish. I made an excursion recently to the ponds in the neighborhood of Hoboken, and although it proved too early for any traces of vegetation in the ponds, I was well paid for my walk I found every brook replete with vegetable wonders, What think you of large streams being actually paved with Meridion circulare? or carpetted with that exquisitely beautiful plant Batrachosperman moniliforme and other places green, with Echinella rotata? Our Meridion is a curious affair, At this season the bottoms of almost all the streams in this neighborhood are invested with a ferruginous, or olivaceous, mucous matter, which coats sticks, stones, and plants with a delicate covering a quarter of an inch thick and produces a beautiful effect when seen on the waving fibres of grass, roots, &c in the water In this mucus the Meridion is produced in countless myriads, and if the individuals from a small stream could only collect in one spot they would

form a deposit equal to those produced by the silicious Infusoria. This plant (if it really is one) is silicious and of a very beautiful form, I have found many in which there were as many as three or four coils in the "helicoid" formed by the plant as shown in the annexed drawing (A). The other figure (B) will give you some idea of the appearance of the mucus with which this thing invests various bodies.



I have collected a large quantity of this plant and have commenced a chemical investigation of it. The covering can scarcely be gum, or mucus as these would dissolve in water, it is not gelatin being unaffected by Tannic Acid. It is insoluble in Alcohol The colouring matter in the frustules dissolves readily in Alcohol leaving the frustules colourless, and giving a fine green solution of Chlorophyllite? As I have but just commenced the ex.n I can state no more at present, I intend however, to see if the frustules instead of being pure silica may not be a silicate of some alkaline base and also to seek for manganese, traces of which I have often found in these siliceous affairs. I have a great number of first rate specimens of the above for you, and also many very fine ones of Batrach.m moniliforme of which last plant I have found quite a locality, It is at the foot of the dam at the Pond on the mountain back of Brooklyn farm. At this place there is one of those wild secluded glens watered by a subalpine brook which rare plants and sheer admirers so much delight in. I expect to get many rare things from this place. I noticed here a very beautiful green matter completely covering many of the stones in the brook, its exquisite tint of green made me suppose that it might be the young state of some moss or alga and I accordingly brought it home for ex.n What was my surprise to find my plant alive! When placed on the porte-objet in a drop of water the

individuals commenced moving about irregularly but briskly, and showed the finest
apparently,
beautiful display of the rotating cilae that I had ever seen. The shape of these
creatures is something like this  , and their natural size this ||| which
is very large for an animalcule, their colour is something like Scheeles green
but far more brilliant. I am almost afraid of tiring you with my divers,
but I derive so much pleasure from these pursuits that I wish to have others
to share it with me, I must then mention one other beautiful object which
I have lately seen. It consists of nothing more than the branchiae of an
Anodonta (probably most any other bivalve will show the same). If a single lamina
of these lungs be laid in water on a plate of glass, there will be seen by the microscope a
most beautiful display of vibrating cilae which will continue even for
three days. I do not wish to travel to see Rome or London, St Peters
or St Paul, when I can find such wonders at home.

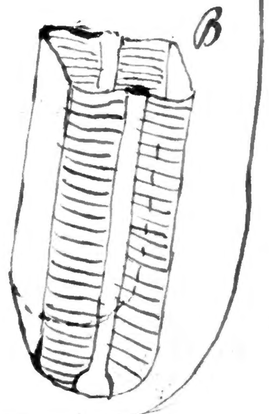
I regret to hear that Mrs Torrey's health is so bad, but as her physician says she
must go into the country, I trust we shall soon have the pleasure of the visit from
you and yours. Mrs B. says she hoped that when you came she should have a
decent cook, but as the one now just received leaves, like all we have had before
a "plain cook" alias no cook at all, she despairs of ever doing any better.
We trust however that a hearty welcome will render our plain living
tolerable for a while, especially as I know that you are no great worshiper of
the flesh pots, and more especially as you have lived here and know what
a West Point market is. Please send us word when we may expect your family
and when you come up bring Dr Grays letter and also a globule set in your
new way. My best respects to your family and self Yrs truly J. W. Bailey

(over)

CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

P.S. I have lately succeeded in turning over, at will, the siliceous infusoria and have thus been enabled to examine them in various positions, ~~Lately~~ by which means I have ascertained that the true form of the most remarkable species is this. viz. they have two striated faces and two perfectly smooth, and if we take one of the striated faces as the base, the form is, what mathematicians would call an elliptical cylinder.





A. shows the whole animalcule
B a portion broken so as to show edges of the 4 pieces two of which pieces are striated, the other two smooth as glass.

Dr John Torrey
corner of Prince & McDougal sts.
New York

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Does Ehrenberg give any figure similar to the above in his drawings?

P.S.[2] I have just exam. the vascular system of Lycopodium and find it to be exactly like that of ferns. Indeed the spirally lacerated ducts could not be distinguished from those of ferns. None of the old fashioned spiral vessels which belong to flowering plants were found by me.

I have just read my letter to Mrs B. She says tell Mrs. Torrey that she is very anxious to have her come, and that she is a Virginia lady consequently not the least ceremonious.

BOTANY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

35

Rec'd Sept 30

West Point. August 1842

My Dear Friend

I am much pleased that your long silence is again broken and that our correspondence which is so pleasant and profitable to me is renewed. The reasons which you assign for not writing sooner are exactly those which I had imagined, and I should not have waited for you to write, if travelling, family sickness, and various other causes had not been in operation to prevent. In the way of travelling I had a delightful tour in July, in company with my Assistant, Lt Kendrick. We started from New Burgh in a buggy and crossed to Carpenters Point, then down the banks of the Delaware to the Water Gap, thence over Pokono Mountain to Wilkesbarre where we visited the Coal Mines, old battle grounds &c, and returned by way of Berwick, thence to Mauch Chunk where we saw the huge mine which is worked "sub die", then we went by the way of the Lehigh Gap to Belvidere and up by Newton, Hamburg, Warbeck &c to New Burgh - This journey afforded much of Geological interest, giving me a fine opportunity of seeing the undulations into which the various strata from the Primary up to the Coal formation have been thrown, producing those parallel ridges which form so striking a feature in our Appalachian Regions

It also gave me an opportunity of comparing the rocks along this route with those which I had seen on a similar section in Virginia, and confirming the statements made by the Profs Rogers of the striking identity of the phenomena over this vast region. I saw very little of any botanical interest, the only plant which I noticed as new to me, was a Melanthaceous plant which was pretty conspicuous in the swampy bath lands of Pokono Mt and the Shades of Death

I was better in cleaning out out baggy then away my "weeds", so that I saved no specimens. It was about 2 feet high, radical leaves resembling those of Acorus, cauline ones

small, flowers greenish white, stamens with dilated filaments – I was obliged in consequence of the engagements of my companion to pass right by the fine mineralds of Hamburgh, Warwick &c without stopping – I hope however to make a visit to this region again when I shall be less hurried, You must have had a delightful trip through the Pines – I wish I could have been with you.

With regard to the vacant chair of Chemistry in Virginia, I find some difficulty in deciding, my own feelings and judgement would lead me to stay here, even if there was a chance, which I think there is not, of my getting the appointment there – Nothing would induce me to go there but a certainty of great pecuniary advantage to my family, and the benefit to Mrs Baileys health which might result from a change to a more southern climate – I think that I shall not apply, but can not decide positively until I learn more about the advantages of the situation and the probable chances of success. I feel very grateful to you and my friend Prof Henry for your very kind offers of assistance, and will most gladly avail myself of them, if I determine to take any steps in this business – I know of no one who can give me more judicious advice than yourself, and I would be very glad to learn what you think of the relative advantages for me of the Professorships here and at Charlottesville, – I presume that very few except yourself would stand much chance against Dr Rogers, If you should apply, and scientific men were to make the selection, testimonials of your qualifications would of course be superfluous but with people of the stamp of the Board of Visitors in Virginia, "certificates of good behaviour" &c must I suppose be used, and I need not tell you how gladly I would do all in my power in that way for you. I have just got a letter from Hopkins from which I learn that he will probably be an applicant and stating that although he does not think there is much chance of success, he is yet so situated that he is "in a condition to attempt desperate things" He says

CORRESPONDENCE
HERBARIUM
OF
COLUMBIA UNIVERSITY

do that in case I should leave N.C. he should try for his old place — He asked for my recommendation to use in Virginia, and said that even if we should be rivals he did not see why we should cease to be friends, and he offered to give me a good "puff" if I wished — In answering him I told him that it was very doubtful whether I should apply for the vacant chair, and that it was not improbable that some of my scientific friends might become applicants as well as himself, and that therefore I should abstain in my letters of recommendation from expressing any preference for any individual, but state conscientiously what I thought of the qualifications of each, This is the way I would wish to be treated myself.

Let me know if you determine to be an applicant, and also whatever you may know of the income, duties &c of the situation, also who are the applicants and their chances of success. I have myself taken no step whatever in the business and shall not unless I see distinctly that there is a reasonable chance of success and a certainty of bettering my situation.

I have little of scientific interest to communicate, for travelling in the first part of the season and nursing the sick lately have consumed nearly all the summer — It may be new to you that a very distinct and beautiful circulation can be seen in the hairs on the peduncle and lower part of the fruit of Circaea lutetiana, It much resembles that of Chara, being up one side and down the other and bearing along large oily or albuminous globules — Another kind of circulation resembling that of Tradescantia may be seen in the hairs within the corolla of Digitalis purpurea. — I find the remarkable siliceous cupsoria which produce those beautiful punctate discs found fossil in Virginia live abundantly in the waters of the Hudson River, also in Boston Harbour

I had a visit this spring from the Rev John Lewis Russell of Salem who with all his roughness and oddity yet appears to be a very worthy

and learned man — He taught me a good deal, that I was glad to learn about Lichens & Mosses, and gave me some marine Algae — I have not forgotten although I am almost ashamed to allude to my promise to you about Algae — The fact is that I have had no opportunity to study the marine Algae of this state, and the few facts in my possession would make but a meager show — Still if a pretty complete list of ~~the~~ the fresh water Algae, and of such of the marine ones as I have seen or heard of would be of any use, it is at your service, at a weeks notice.

Dr. John Torrey
Princeton
N. Jersey

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY

PRINCETON POST OFFICE N.J.
SEP 7

Sept 5th

I am delighted that Gray has honoured old Harvard, and I hope he will teach them how Botany consists in something more than counting stamens.

Mrs Bailey has been an invalid all summer, and for several weeks has been confined to her bed with her old complaint — I trust however that she will soon be about again — We shall be very glad to see you in September with such of your family as you can conveniently bring — We have good servants and can receive you without trouble and with great pleasure — I would have sent Jane a ticket for the great Ball given by the Cadets in honor of Mrs Bailey's return — but I did not know whether you were in town — We like much to see you in your rural abode ever — Yours truly A. A. Bailey

Give our warmest regards to Prof Torrey and family

Redeemgtn

And. Davy. 21st 1842 West Point. December 1841

CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY

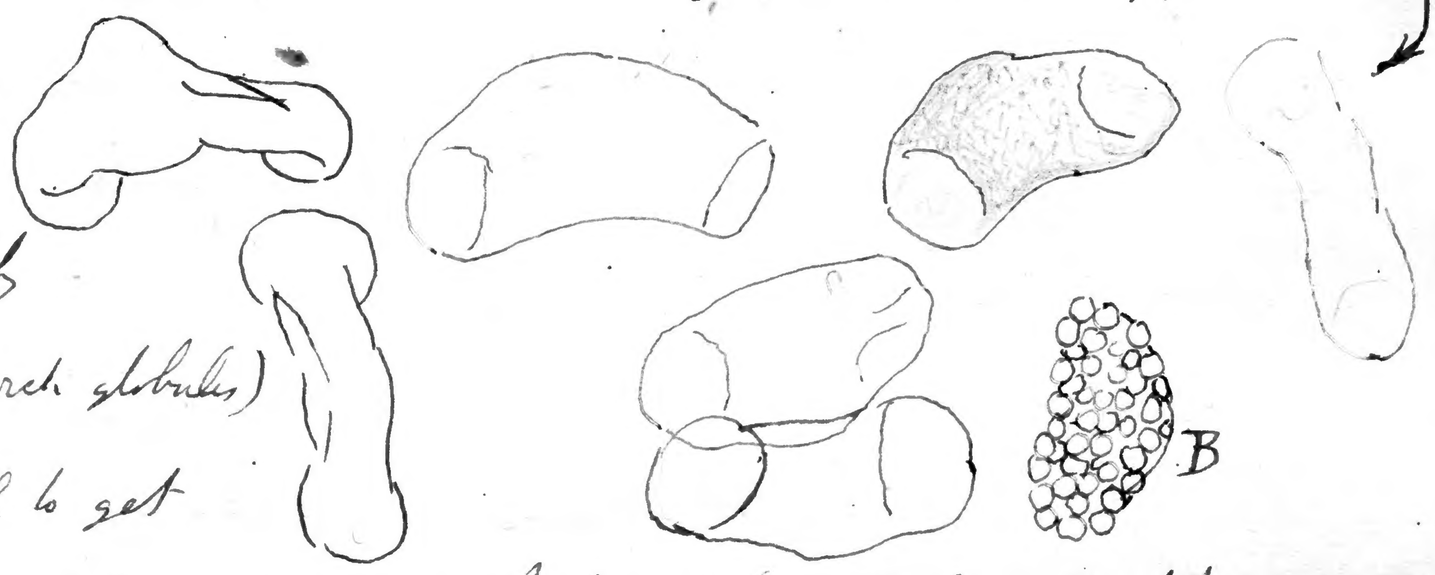
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My dear friend

I sent down yesterday (Monday) by the sloop, the "tube and limb of the gamopetalous corolla" in a package directed to Mrs Torrey care of Dr Chilton - This letter will probably reach you before the package will get to New York - The directions are marked upon the articles sent but to prevent mistake you may repeat them to Mrs Torrey thus

"The string is the length of the skirt, the body sent fits well except being a little too light across the chest, and a little too short for the fashion - I am afraid we tax Mrs Torreys kindness too much, but she is not obliging the unthankful,

I have not yet given a satisfactory examination to the Ruffia, and indeed the fragment you sent is somewhat of the smallest - To examine it satisfactorily several spikes in different degrees of development would be necessary - The pollen grains as traced by cam. lucida appear thus,



With them are interspersed a number of bodies about the same size and of an oval form composed apparently of very minute spheres (looking like starch globules) See B aggregated together - I have not been able to get hold of the stigma, and have therefor not yet seen any pollen tubes - I would like much to examine this plant in its recent state.

I am delaying the extra copies of ~~B~~ the notes on Bacillaria in order to attempt colouring a few copies of the plates, I have tried one copy but I succeeded so badly that I am ashamed to send it to you - If I do not do better I shall send you a lot of the plain ones for distribution among your correspondents

I wish you would get Chilton to have some longitudinal slices of his Texian wood ground ~~to~~ from what I can make out by looking at splinters of it, it is

a curious affair, and has its structure very perfectly preserved.

I write in much haste

Yours very truly

J. W. Bailey

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Rec'd. Jany 3rd

West Point Dec. 29th. 1836

4

Dear Sir

I had almost despaired of being able to get M. Borda forwarded to you, but have learned to day that there are two hoses left. Att. the teams from the Foundery go to New York quite frequently with castings and if I find out tomorrow that one is about leaving I shall send the drawings by that way.

Mr De Witt will visit New York next week and has promised that if I cannot get the drawings down by the Foundery teams he will take charge of them if he has not too much baggage of his own. The plates will be packed in a small box and directed to you to the care of J Chilton 263. Broadway who I shall take the liberty of requesting to pay the freight and charge the same to you

I have little doubt that in one or the other of the above ways the plates may reach New York in a little more than a week The printing was completed just one day after (of course) the last steamboat passed West Point, they have since been pressed which will give them a better appearance, and the printer says he will have them packed and all ready by noon of day after tomorrow. I believe he has done as well and as quickly as he was able in his circumstances, as he is only able to work evenings but it is the elements which oppose us.

It is possible that in the box with the plates, I may send the original work from which they are taken; if so it will be on top and can be taken out by removing one board, this may be done at Phillips and you can then send the box directly from his store. I hope the New Haven boats may not be disappoint us

There are only about 1340 impressions of each plate yet printed, and as the additional number are not immediately wanted I have directed the printer to print these at his leisure and they can be sent on in the spring. I shall direct him to use up the paper

You must not be too bashful in calling upon me for small drawing such as I can execute I will do with pleasure

I would have written you several days since, but a vile influenza prevented; if I had written however I could not have given the hopes which I can now as I only heard to day of the means above mentioned. Should both of these fail (which is scarcely possible) I think a kind of compromise might be made with Fate in this way; If Prof. Silliman would select from his subscription list the names of those persons whom he supposes to be most interested in botany, and send their names to me I could forward to each of them by mail a copy of the drawings which at most would cost them letter postage. The remainder of the subscribers might be furnished in the spring – I merely mention this as the last resort

What of the Am. Soc. Ne. Yrork.?

Yrs in haste J. W. Bailey

TORREY CORRESPO
HERBARIU
COLUMBIA UNIVE

P. S. Can you tell me what reputation the analytical tables in the the first volume of Necker's Regne Minerale, have among men of science in this country? From a hasty examination it has appeared to me, that the arrangement is more satisfactory and many of the groups more natural than in any system which has reached this out of the way place and I have proposed to myself to translat and lithograph the tables merely, for the use of the Academy, as they can be used with any book containing descriptions of minerals. Mineralogy is in such a confused state and I am such a novice in it, that I must ask for your opinion which may save my throwing away my labour on what may not be a work of authority

CONDENCE
UM
ERSITY.

Dear Sirs

Mr. Joseph Short

Dr. John Conroy

Sirs

a letter will be sent by mail, as soon as possible after the box starts.

Rec. Feb. 23 — West Point. Feby. — 1838

And. April

Dear Sir

COLLEGE OF PHYSICIANS AND SURGEONS COLUMBIA UNIVERSITY

Believing that you will be much interested in the fate of the old Chemical Room, where you have doubtless passed many a happy hour, I send you the following hasty account. I was roused about 12 on Sunday night by the cry of fire, and on looking out I soon perceived that the east end of the building in which my chemical room was situated, was in flames. I was of course soon on the spot, and rushed into the Chemical Room to remove the inflammable, &c. I was among the first in the room, and ~~[illegible]~~ nothing was moved until I ordered. I began with the Alcohol, Ether, Naphtha, Potassium, Sodium Gunpowder, Fulminate &c. I then pocketed all the Silver, Gold, Platinum crucibles, &c &c. I had about 3/4 of an hour, to work in, during which time, thanks to the efficient aid I received from the Cadets, I was enabled to remove almost every thing belonging to the Room. Of course there was some cracking among the retorts, but far less than I could have believed possible - Every delicate piece of apparatus which I gave in charge to a cadet was saved without any injury - The lamps were taken out and deposited

in the snow until the next morning — Although we worked a part of the time with the roof blazing over our heads, we did not quit the room until every thing of value was ~~gone~~ taken out. I was even able to save many fixtures. The pneumatic trough was torn up by its roots and carried out uninjured, From the mercury bath, ~~the stand~~ we took the mercury into pails and afterwards started the trough itself. Your huge old leathern bellows above the furnace, was very difficult to start; but we at last succeeded. In short we left little of any value except "Dr Cox's Inclined Plane!"  of which, alas! not a trace has been found. While the portion of the Cadets, were thus active in removing the "Chemicals," others were no less useful in the Library and Philosophical Room. The East wing being in flames the Library, could only be reached by ladders at the windows, and by a hole broken through from the entry of the Phil. Room.

The books were pitched out like bricks into the snow, and are of course much damaged — The portraits were nearly all removed Col Williams, Prof Mansfield, Gen. Macomb, Gratiot, Swift & Monroe & c uninjured. I have not heard positively whether Jefferson escaped or not. The Philosophical apparatus was moved under Mr Bartlett's eye and with no great injury, the fine telescope, the plate electrical machine, the astronomical clock, chronometer, & c & c all safe

(from a miserable [redacted] stove, and the carelessness of an Irishman)

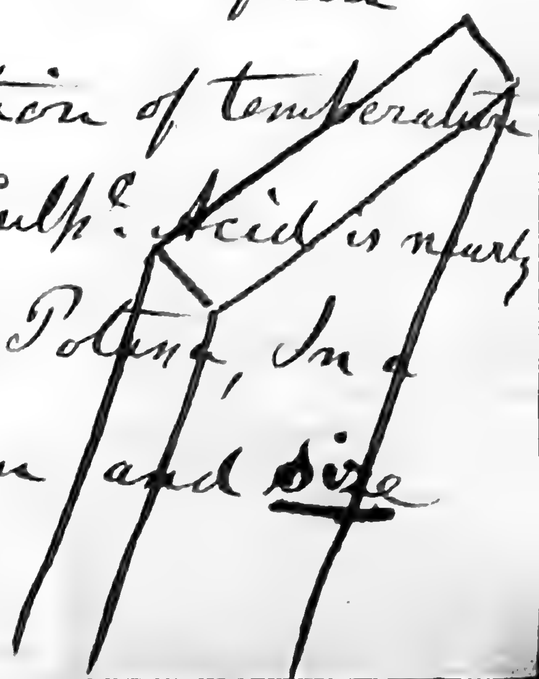
The fire originated in the lower story of the east wing of the Academy



A Chemical Room
B Phil. Room
C Library
D Adjts office
E Engineering Acad
where the fire broke out

in a room occupied as the Engineering Academy. Everything in this room and in the Adjutants office, above was lost. The models in Engineering were highly valuable. The fire might easily have been stopped in the East wing if there had been any means at hand, but when too late to be remedied, the Engine was found worthless, the hydrants useless, in short every thing which ought to have been in a state of perfect order, was found in no order at all, and consequently after getting what we could from the building we had to stand inactive and see the fire gradually progress along the eaves against the wind until it finally burst through the slate roof, and the whole was wrapped in flames — Our old Chem. room which [redacted] know [redacted] it was long ago prophecied was to destroy the building, was the last to yield, and stood fire as if it was well accustomed to it. Monday was spent in removing the books of the Library, with Chemical and Philosophical apparatus to the Hotel (now unoccupied by a family)

The southwest parlour is filled with my apparatus and materials, Bartlett has his in the N.W. parlour and in the Dining Hall, the books are in the basement story. Some of my bottles burst in the snow from freezing, and I have seen the effect of reduction of temperature on many substances on a large scale. My Nordhausen Sulph. Acid is nearly solid and appears full of little scales like Chlorate of Potash. In a bottle of "Distilled Vinegar" I saw a crystal of this form and size



The Board of Visitors last year spoke of Bartlett & myself as "contending with difficulties" I wonder what they would think now. I shall continue hearing recitations this year in the Mineralogical Room in North Barracks, and fortunately my class experiments were nearly finished, What I shall do next year for a Laboratory I cannot tell. Congress must now appropriate for a Chem. Room. and if I can get a handsome sum for a seperate building I may year after next be in comfort again; but in the mean time ——!!!

Dr. John Torrey
corner of Prince & Mc Dougal Sts.
New York

I begin to morrow to make out a list of the loses in my Department, and fortunately I saved your old Catalogue which will serve to guide me through the Labarynth. I believe now that $200 would replace every thing belonging to the Chem.l Room. My respects to your family and to Dr Gray. Thanks for your paper on Vanquelinite &c. With great respect

Yrs &c J. W. Bailey

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Ansd. March 19th

West Point. Janry 20th. 1843

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

38

My dear Friend

Your Christmas letter has remained a long while unanswered but I suppose the fact of my being engaged at the Examination from 8 A.M to 3 P.M daily for three weeks is sufficient excuse to offer. We have got through this terrible job at last, and without its making me sick a bed, more than three days. The only time of the year which allows me any leisure is now about to commence as I shall never really be assisted by my so called Assistant for a large part of the time between now and June, i.e. until Geology has to be resumed in the Spring— I have done literally nothing this year in the way of science, and have not time even to work up my old notes into a proper form. I am delighted to hear that your Medical College is doing so well, and I am selfish enough to hope that it may fix you permanently in N. York. I have not felt at home in the city since you left there, and I have missed exceedingly the scientific conversations and sympathy that I used to enjoy with you, and the delightful picture of domestic happiness afforded by your family.

I have passed the last three of four days in reading as well as my poor knowledge of German would allow me too, a splendid memoir by Ehrenberg on the subject of the Infusorial forms of ~~the United States~~ North & South America — I am indebted for this pleasure to Prof: Silliman who sent me his copy, saying that he presumed that one had also been sent for me, but that it might be delayed by the suspension of navigation— In describing the infusorial forms of the U. States he does ample justice to my efforts, and indeed the "Herrn" Professors Torrey, Hitchcock, Silliman & Bailey figure largely in this paper— This paper contains the first intimation that

I have seen that Ehrenberg ever received the packages I had sent him, He has made excellent use of the materials, He gives a beautiful plate of figures of species found living by him in a phial of pond sediment which I sent him, Do you know if Dr Gray has received any package or letter for me from Ehrenberg? If he has, it can be sent to Chillon, and I may perhaps get an opportunity to send for it, before the navigation opens.

I have examined your New Jersey fossil, and it appears to me to belong to the byssoid fungi, It is wholly unlike any Alga which I am acquainted with I will examine it more thoroughly and if I can add any thing to the characters which you have already made out, well, I will let you know.

Your idea of the nature of the black particles is probably correct, although it is possible they may arise from an altered or diseased state of the fossils.

You ask what are my prospects for getting better rooms for my Department and suggest that Chemistry is not appreciated here, Judge for yourself from these facts. You know I was repeatedly and solemnly promised the room lately occupied by the Library, The books have been removed from it, a few pictures and lamps are hung up in it, and it is called in orders the "Court Room" which I have been offered instead of it, a little piece of the Riding hall ents which the sun never shines, and which is lighted only on one side and not ventilated at all. I have indignantly protested against this breach of faith and shall take care to present it in the proper light at Washington when I go on next May, — If I could find an animalcule small enough I would be almost tempted to dedicate it under the name of Delafieldia tenuissima as a mark of my respect to our Superintendant.

Speaking of Washington reminds me that I have received from Col Totten a very polite invitation to make his house my home during my attendance at the

?

meeting next May. Although it will not be convenient for me to accept this invitation, it was nevertheless a gratifying evidence that all our Engineer officers are not A alike.

If you are writing to Gates, it would perhaps be well to get him to include in his New England Flora the following localities observed by me

Podostemum ceratophyllum, abundant on rocks in the rapids of the upper part of the Penobscot River. Main

Vallisneria spiralis
Lobelia Dortmanni } abundant in lakes and still waters of Upper part of Penobscot River, near Mt. Katahdin

Swertia (Halenia) deflexa, shores of Penobscot near Mt. Katahdin.

Give me an account of Grays success, for he will of course, succeed with his lectures.— I have been adding to the picturesque appearance of my garret by putting up some shelves for minerals, and it is now a little more comfortable, I hope to pass some pleasant hours in it with you next spring,

Mrs Bailey sends her kindest regards to your family, she hopes that as soon as the weather will permit that she may have a visit from some of you, She says that if you will let Jane and Elsie come up and visit she will promise that they shall not even see a Cadet except at a distance

I am not disposed to apply for the Philadelphia Professorship now I shall stick by Uncle Sam a while longer, and if Beats us too badly I shall then try to get into some more comfortable place— I am glad that Rache has got the appointment, and believe he will make more of it than Hassler did.

with sincerest friendship for you all

I remain

ever yours

J. W. Bailey

TORREY CORRESPONDENCE HERBARIUM COLUMBIA UNIVERSITY.

Dr John Torrey

corner of Princi & McDougal St.

New York City.

Recd. Jany 7th

West Point, Jan.y 3d. 1836

Dear Doctor

I sent the box of plates yesterday to the Foundery and the bearer reported that it was placed immediately on board a team then starting for New York, so that in all probability before this letter reaches you the box will be at Chilton's store 263 Broadway, I requested him to pay the freight and charge it to you. Please inform me of the reception of the box and also if you will be able to get it to Silliman by stage or otherwise. I have not sent down the book, but will send it with the remainder of the impressions by the first opportunity in the spring. The box sent contains 1500 of each plate.

We are now engaged in that most boring of all bores, the January Examination and are of course quite busy

Yrs truly

J. W. Bailey

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Dr J. Torrey
New York

West Point. July 2d. 1864

My dear Friend

I hasten to answer your note and inform you that the visit from Eliza and Hastings next week will be truly acceptable. I wrote a note to Dr Gray a few days ago, and asked him which he visited you to tell you to send on one or more of the girls. Cannot you and Mrs Torrey come on also.

Gray wants me to make a list of drawings of Bacillaria &c for his lectures at the Lowell Institute, but I have too much on hand already to make such an engagement. I will gladly however furnish with all the aid I can, by selecting figures, mentioning facts &c. and I have invited him to come on here for the purpose of having a good talk together about such matters.

Do not you and Gray want to take a trip to the Catskills for a few days- I never have been there and I long for a trip.

I have much to say and to show to you, but must close now in haste

Ever your, most sincerely

J. W. Bailey

Your Algae I fear are still at Shelton's

Rec'd. June 4th

West Point June. 3d. 1839

COLUMBIA UNIVERSITY

My dear friend

I am truly rejoiced to find, that the disappointment we had last week in not receiving the expected visit from you, was not owing to affliction in your family- We hope that you will still be able to come up this week, We are now all prepared for your reception and a visit from yourself and family would give us great pleasure. Our Examination has been postponed until next Monday so that this week I shall have much leisure time which I would be very glad to spend in your company- If you can bring Mrs T. and the chicks, do so by all means.

I have selected a list of things for Quekett which I shall transmit you with, his specimens of Lamprylo. clypea were very beautiful when I received them, but not knowing that any others were in the country, I fixed up every fragment I had either on glass or mica, and in this process many of the whole ones appear to have got broken- for not a single specimen I have will compare with what I ~~first~~ saw when they first arrived-

I have lately had fine views of the circulation in the mouth from the vessels attached to the filaments of the stamen in Tradescantia virginica- Gray asked me to look for it, and I did look, but in vain for some time, but it at last

occurred to me that it must have been shown him by candle-light at some of the scientific parties in London. I accordingly tried this means (which often brings out things not seen by daylight) and I succeeded in seeing very distinctly the currents moving in each cell of fibres— These currents are very decided, but yet far less easy to observe than those of Chara, the moving particles being far more minute.

I have been looking during the past week, at the ducts of Liriodendron, which are large and strongly marked, and beautiful objects, We will take a peep together.

I hope you will bring up all the <u>difficult</u> objects you have, that you may look at them with the new Rapail— I have my den now, in my garret, where I have a good light, and am out of the way of every body. You can work here, during my occasional absence, in perfect retirement, and if you want to look at the structure of plants I have a whole garden full of— weeds! many of which are curious enough I assure you.

I write in haste, my main object being to ask you to come up as soon as this reaches you, and if you can bring your family with you conveniently do so, if not we must wait a while I suppose, but we won't let you be retired!

Yours most truly

J. W. Bailey

COLUMBIA UNIVERSITY.

Don't forget Lieut Peters &c

New York- June 24 th. 1859

Dear friend

24

I was disappointed to day in not finding you in the city,- I hoped you might be down.

I have left with Thos a package for Quekett which you will greatly oblige me by forwarding by some safe person

I have also left a package of Gray's letters

I expect to start next Monday for Providence where I shall leave Mrs Bailey and the children, and I shall then probably start alone for Wisconsin where I hope to do something to secure for my family something to depend upon beyond my yearly salary- I am not going to speculate, but, like

I hope to do something for them.

You heard through Dr Ellet the unfortunate accident which happened to my dear little girl Her collar bone was broken, but is now mending again - I hope it may not disfigure her much. We have great reason to be thankful that she was not killed on the spot.

As we start to-morrow for Providence it will be best for you to postpone your visit to us, until we return in September when we shall be very glad to have a visit from you all.

I have just found the Bulbochaete setigera (Alga) abundant in ponds near West Point—

When you write to Dr Gray give him assurances of my warmest friendship - My love to the children and best respects to Mrs Torrey

in haste Yours truly. J. W. Bailey

HARVARD UNIVERSITY
HERBARIUM
CAMBRIDGE, MASS.

(Algae)

RIED
VERSITY.

Dr John Torrey

corner of Prince & McDougal

care of Dr [redacted] Fuller

and. March 26th

West Point. March 11th. 1839

HERBARIUM
COLUMBIA UNIVERSITY

17

Dear Sir

You were kind enough to offer me the use of your collection of Algae, and as I have now some little leisure to attend to them, I would be very glad to have you leave them, if convenient at Chilton's directed to be sent up by Capt. Fauvet. to me. The beautiful specimens you obligingly gave me last year have proved a great source of amusement and instruction to me, and have kindled in me no small enthusiasm with regard to this much neglected branch of our botany. Dr Gray never longed more to get hold of the tree ferns &c of the southern climes, than I do to have an opportunity to examine the exquisitly beautiful Algae which must abound in every rocky nook and bay of our coast. I feel now that it is possible even for me to add something important to our Flora, and I assure you that were my opportunities as great as my desire, they would be improved to the utmost. Shut off as I am from the sea coast, I have yet the fresh water Algae close at hand and have already paid considerable attention to them, I am surprised to find that here as well as in some of the other low orders of organised beings the species of this country appear to be absolutely identical with those of England. Doubtless we have some peculiar species, but the great mass of the order appears common to both

countries, I consequently find the part relating to Algae in Hookers English Flora an excellent guide in studying the species of this neighborhood, I have been able to study many of them this winter, as they remain unchanged in springs &c and can be found whenever there is a thaw. I noticed not long since a fact with regard to Zygnema pectinatum which throws some light on the paradoxical statements of Meyen which Lindley refers to (Nat. Syst. 2d ed. p. 432 near the bottom) with the remark "that he knows not what to say of them &c." This plant when a single filament of it is taken out of the water immediately commences writhing and twisting in a most extraordinary manner and contracts at the same time "from the length of .10 inches to that of 4–6 lines", as Meyen states, and those who have not been able to confirm his statement in this particular must have looked (as I did at first) for the contraction, while the plant was still immersed, this contraction however has nothing of an animal nature connected with it, It is wholly mechanical, and due to the eminent hygrometric properties of the filament. On moistening the dried filament it almost instantly resumes its original length and appearance, except that the spires are somewhat deranged.

I have detected several species of this Genus in this vicinity and have seen them both in their ordinary state and in conjugation. I have tried in vain to find any means of preserving them for the herbarium so that they may retain their natural

appearance and character— I have added to our American Diatomaceae two interesting species which I think have not been previously noticed, viz Desmidium cylindricum, Grev. and Achnanthes? brevipes?, both of which occur abundantly, the first in the vicinity, and the last on specimens of Conferva fracta from near Providence R.I.

I find also that our Meloseira is not "nummuloides" as I supposed at first from its identity with foreign
specimens so labelled by one of your correspondents. It agrees in every particular with

M. lineata, Ag.— Our old friends the "Infusoria" have given me some amusement this winter, and I have hit upon a method of seeing them in situ, and also of taking them out from the tissue one by one. I have now several glass slides prepared for you showing them again in situ; removed; and also after the discharge of the raphides. I have prepared also for you, some beautiful specimens of Diatomaceae &c. I cannot but regret however that I have nothing more valuable to return for your many favours— You must by this time have heard from Dr Gray, pray (when you have leisure) let me know of his doings for I am much interested in all relating to him. Assure him when you write of my highest regard and sincere well wishing— We have got an chemical apparatus for this year, and among the items are a marble pneumatic trough and marble mercury trough, I would be very glad to know what you consider the beau ideal for the construction of these, as I wish to have them fabricated,

I have long wished to have the pleasure of a visit from you and your family but the delicate state of Mrs Bailey's health and the state of unstable equilibrium in which we are almost constantly kept with regard to servants, (which does not allow us to form any plans for a week in advance) have prevented my giving you an invitation to come up at any particular time. I hope however, that you will be able to come with your family some time this spring, and as we cannot tell when will suit

Dr. John Torrey
Corner of Pine & McDougal
New York

you best, I trust you will waive ceremony and let me know when you feel disposed to spend a week or so in the country, and I will inform you with all candour whether it will as convenient to us, as we wish that order to render your visit pleasant to you. Give my best respects to Mrs Torrey and my love to the children not forgetting the little Herbert Gray.

Yours very truly and respectfully

J. W. Bailey

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY

Reed, April 4th

West Point March 31st. 1837

CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

5

Dear Sir

A severe cut on my right fore finger prevents my using it which must be my apology for sending you but a few lines at present. I regret that I did not hear from you sooner concerning the plate for Mr Downings paper, I would have attended it with pleasure, for it is a real gratification to me to contribute in any way to the extension of Botanical knowledge

I again repeat that I hope you will not be backward in calling upon me in cases where such drawings as I can make will answer the purpose. If in any case I can not attend to them conveniently I can let you know immediately. The plates for Corda I had but little trouble with, and any similar drawings to about the same amount, at any one time I could make if allowed time enough to guard against accidental delays caused by my official duties.

The balance of the impressions for Corda are printed and if you direct so, can be send down by Capt Faunt and left at Chiltons I have told the Lithographer to have his bill ready, against your arrival here — I prepared this winter a list of the plants which

I have noticed in this vicinity, during the casual observations I have made for 8 or 9 years, It does not contain either grasses, mosses or lichens, but as it contains the localities of many interesting plants and the time of flowering as noticed at the <u>same locality</u> for several <u>successive years</u>, it may be of some value to you, It awaits your directions, I hope however to see you soon, at my house when I can give it to you.

I perceive there are some trifling discrepancies in the lettering of Borders plates, and the text, but on examination I find the same exist in the original

My daughter is suffering much with the "milk crust," and I have been advised to have her vaccinated, as a possible method of curing her; if you approve of such treatment you can confer a very great favour by sending to me in a letter a little of the vaccine matter, as there is none on the Point I hope Dr Gray's discoveries will be published in Silliman, for that is my only chance for seeing them, <u>no other</u> scientific periodical ever reaching these benighted parts, under the new regime; and even the works of nature around us are being fast destroyed

by barbarian hands, You must remember, the lovely spots called the Cascade, and Washington Valley, would you believe that any person could be so savage as to deprive them of all their charms, by cutting down all the trees? This has been done however by our Superintendent, and for what, no one can imagine as the trees were principally young chestnut, and of course without value as fuel. Thanks God! the Crown-nest is not yet moved.

My hand will soon be well, so if you have any drawings send them up

Yr truly J. W. Bailey

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

P. S. I have just heard that I can get the vaccine matter, at Cold Spring, so I will not trouble you about it, I would however be glad to hear of any thing likely to relieve my daughter.

with a pamphlet



Dr. John Torrey

Mc Dougal Street

New York

Rec'd. May 8th

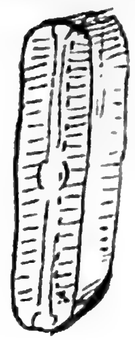
West Point. May 6th 1839

GRAY CORRESPONDENCE
HERBARIUM

My good friend

I have just time to acknowledge the reception of Ehrenberg's pamphlet & Dr Grays letters, with your note— The letters were so interesting to me that I read them all at a sitting, and intend to go over them more leisurely two or three times in addition— Dr G. has always had my sincere regard, but his letters have added if possible to my high estimation of his character— The devoted friendship he shows to your family is a charming trait— I regret that I have not yet been able to answer his letter to me, in consequence of not receiving the package sent by Queckett which I wish to acknowledge at the same time— It is provoking after a thing has crossed the Atlantic, to be obliged to wait a longer time for it, than was required for its passage acron the ocean— What new views, Grays sketches of character give me of some of the savans of London &c. It is too bad, that Lindley, Brown &c can not get along without quarrelling— Think too of Brown's caring about the title of Doctor! With Hooker, Greville, Benthan & I am charmed— By the way, if I make up a lot of our fresh water Algae for Greville, could you get them to him.

Ehrenberg's work at $55 is rather above my means, but if according to my directions in a recent letter to you, you have ordered it, well and good; I will take it and after using it, may perhaps dispose of it to some scientific institution

I am glad at last to have got hold of the name of our old acquaintance the most common and striking form of the siliceous Infusoria  It is the Navicula viridis according to Ehrenberg Plate - I am glad to find that my observations on its true form are correct - A friend has promised to translate for me the whole of the pamphlet.

We are now in the midst of the awful job I anticipated in a recent note to you, namely painting, papering, plastering and whitewashing, I am driven into the garret - but one room in the house is habitable, and that is the nursery bedde.

I am obliged then, nolens volens, to ask you to delay your visit a short time, When once this job is over, of which I shall apprise you immediately, we can then receive you in comfort and shall expect you to make a long and unceremonious sojourn with us.

You speak of bringing only one of your girls with you, we want all hands, and Mrs B. being a Virginian well knows the art of packing folks away for the night in case a house is full, so don't be afraid to bring all. We hope and trust that we shall be regulated again in a week and a half or two weeks - and it will then be even pleasanter upon the Point than at present - and we wish that the visit may be as pleasant as possible to you all.

I see my method of engraving by smoked glass &c has already been used in England. Provoking! - May not the hypochlorous acid of Balard be turned to some account in photography? It is decomposed, if I remember right with great rapidity by light, yielding Chlorine and Chloric Acid - Suppose a polished piece of lead had its surface converted into a Sulphuret

TORREY COR... BOTANICAL ... COLUMBIA U...

is it not possible that under the influence of light and Hypochlorous acid, the light part of an image upon the lead might be converted into a white chloride, or even a sulphate if oxygen is liberated either from the acid or water. while the dark parts remained unchanged,

I have not thought much about this, the idea indeed only occurred to me this afternoon,

During the last week I have found the following Algae - Lemania fluviatilis -

Trentepohlia pulchella - Tyndaridea pectinata (in conjugation) - Desmidium Swartzii and

recently I found, what I have no doubt is the Batrachospermum Americanum of Schweinitz

&c. Our specimens agree closely with that one in your herb.m from Salem N. C. - Agardh

quotes Draparnaldia opposita as the synonym of this, but our plant is most certainly

a Batrach.m - its stem being composed of a bundle of jointed parallel filaments thus



while the genus Draparn., if I understand it, has for its main stem a

articulated filament, thus 

CORRESPONDENCE
BARTRAM
UNIVERSITY.

Where can I find Schweintzs characters for his plants of this tribe?

I sent you recently a piece of natural paper made by the drying of Conferva in shallow

pools - Since sending it, I stumbled upon an old vol of Phil. Trans. for 1790 somethg,

&c. in which I found a full account of this kind of article as it occurs in Italy &c.

I will send you word as soon as we get through our troubles, and shall expect you

then to be ready to come up - My love to your family - in haste but ever

truly your friend

J. W. Bailey

I notice the wishes of Gray with regard to my getting certain plants for him kindly &c and shall endeavour to fulfill them.



Dr. John Torrey

corner of Prince & Mc. Dougal St.

New York

Rec'd May 25th 1839
Ans'd May 30th

AMERICAN CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

92

West Point. May 1839

My dear friend

I received your two notes (16th & 18th) and the package of the strange explosive substance, for which I am much obliged to you. I am of course completely at a loss to account for its formation & properties. As cyanogen compounds are always produced in making gas is it not just possible that there may be present in this substance a fulminate of copper? The result, however, which you obtained with potassa does not agree with this supposition — I would like to know if this substance will explode in vacuo or without the presence of oxygen, I have no doubt however that it will. Was the gas obtained from coal or resin?

I regret very much, the illness of your mother, and I sincerely trust that you may be spared the affliction of losing her, for many years yet.

Quekett's package proved quite interesting, It contained some very nice specimens viz. Sections of silicified palm showing left handed spiral vessels most beautifully

a silicified exogen " traces of dotted ducts

Fossil animalcules from a substance called "floating brick"

Pyxidicula (in flint) from Brighton

Xanthidium ramosum in flint fine!

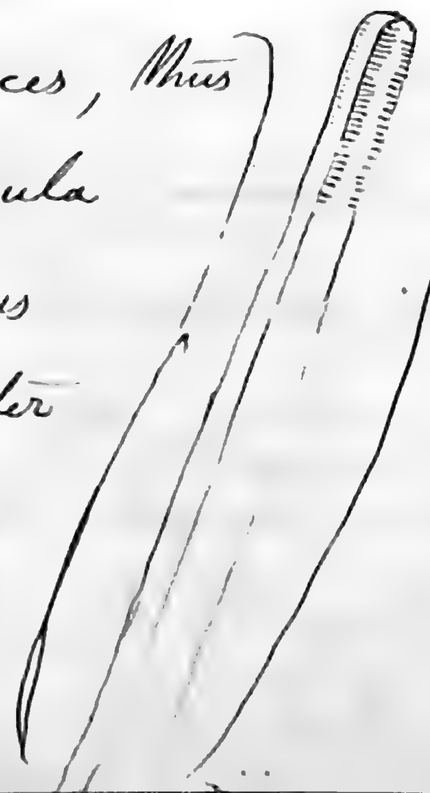
Campylodiscus clypea !!! Superfine, Musica siliceous infusory discovered by Ehrenberg at Eger in Bohemia where it occupies a space 2 miles long and 28 feet thick 10 feet of which was animalcules alone, the other 18 feet being animalcules and fossil pollen! This species is of exquisite beauty, and if Gray has not sent you a supply I can give you a few millions when you come up.

I am making up a package for Quekett which I hope will show him my disposition to reciprocate his kindness — Can I trouble you with the care of forwarding it for me? I would like much to let our good friend Gray get

~~Today~~ a letter from me before he leaves Europe, Is it too late now to send one for you to forward?

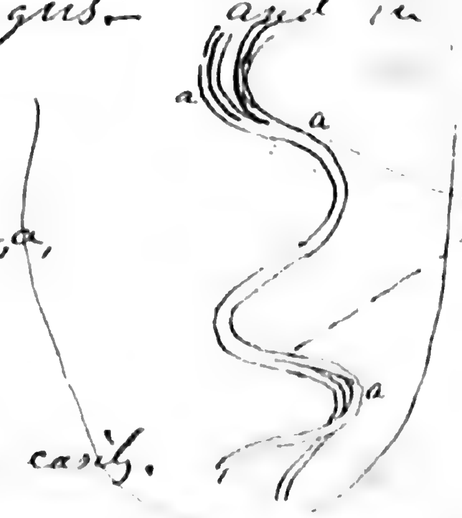
I am been very busily and pleasantly engaged this week, first in looking over a new lot of books just received from France and England for our Library. among those relating to my studies are Geological Transactions, London complete to 1838 very interesting and valuable – Mantells Geology of Sussex quarto, beautifully illustrated Mantells Wonders of Geology – Lyells Introduction to Geol. Goring & Pritchards Microscopic Cabinet containing much useful information concerning the management of microscopes the mode of mounting objects, management of light – use of test objects &c.

Taylors Scientific Memoirs Vol 1. containing several papers by Ehrenberg. Daubeny on Volcanoes – Berzelius Analysis – Witham on Fossil Vegetables. Brongniart's Prod. Veg. Fos. Berthier – Essais par le Voie Seche – Repertoire de Chimie &c edited by Claubry 6 vols periodical &c &c.

Second, I have been very busy with a new, and very fine, double Raspail Microscope received from France for the Chemical Department. cost 160 francs. It appears as fine as a microscope that is not achromatic can be, and its fixtures and accessories are very convenient – The highest combination gives a power of 350 linear, which by drawing out "le tube des oculaires" is increased to 500 linear. In this state it almost equals the best glasses I saw in Philadelphia. You may judge of its power from its action with the thing I sent you as Diatoma elongatum, (vide spec. in herb Tor.) This appears by my highest power to be merely a smooth glassy tube, but with the new Raspail it proves to be a Navicula! with striated faces, thus  . The true Diatoma cristallinum (spec in herb Tor). is also a Navicula agreeing in every particular with the characters of the genus

I suspect that a close examination will show the greater portion of the Diatomaceae to be animalcules Achnanthes must be so I think, and Gomphonema is so classed by Ehrenberg.

I hope when you come up that you will derive much amusement from the use of this instrument— It shows the lines which I supposed to be bars upon the scalariform ducts of ferns to be depressions if not actually slits— By the way, Duckett writes me that he had often dissected these ducts out of ferns and uncoiled them, and he insists that true spiral vessels are occasionally found in some ferns. I strongly suspect myself that all these ducts commence as compound spiral vessels and that by compression the adjacent coils adhere at certain points where one vessel touches and presses against another, by which means the spires are broken into bars leaving slits between them— I believe I told you that vessels of precisely the same structure abound in Lycopodiaceae— I recently found one of them and uncoiled it in a boiled shoot of Asparagus! and in a young (Caisin gives a figure of one from the Madder plant—)
plant of Pteris I uncoiled a vessel into this form



in which you perceive that the thread either branches at a,a,a, or else it is formed by at b the incorporation of two or more fibres.
This incorp.n of fibres would produce a scalariform duct very easily.

I noticed lately that if a bundle of spiral vessels (for instance the long strings so abundant in the petiole of Skunk Cabbage) be taken out of the plant it remains flaccid and inactive, but if the bundle is thrown into water, it generally and frequently very actively coils up into a spiral thus or thus — This indicates a mechanical action which water produces by lengthening or shortening the fibre, and this action must have some important effect on the functions of the plant— The curling of the split scape of a dandelion (an effect familiar to all children) is doubtless a similar action.

We have got nearly through our Herculean task of cleaning, painting &c and hope to finish so as to have you come up about the middle of next week, I wish therefore that you would all hold yourselves in readiness to start say Wednesday or Thursday if it suits your convenience— If nothing unforseen happens we shall then be ready to receive you, which you may be sure we shall do with great pleasure— I will send you a line early next week to inform you if we are ready.

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Love to your family

your friend most truly
J. W. Bailey

Dr. John Torrey

corner of Prince & Mc. Dougall st

New York

DTSKIRA
ASLR

West Point. May 31. 1837

HERBARIUM

7

Dear Sir

This letter will be handed you by Mr Pinnell our Lithographer, who, as is on his way to New York has asked me to give him a letter to you, that he may call for the pay for his engravings — He will be able to tell you precisely how many copies of Corda were printed and every thing else concerning them —

Our wedding affair is over and we are now nearly quiet again though we have still some company with us, — I have been so much upon the drive that I have not been able to look at a single plant but as our species of Cypripedium and other Orchideae are in flower I believe this is just the time for a ramble on the Cro's-nest

Our Examination commences next week, and I shall then be tied to the oars again for two or three weeks, but this week I am free and wish you could be here to join me in a "prowl"

I talk some of going this summer to the back part of this county (which you know is a famous mineral region), and shall probably stay there several weeks - I anticipate much pleasure from the excursion, and expect to get some interesting specimens both of minerals and plants, I however cannot be a zealous mineralogist in summer, any more than you

~~Hartford~~ say, you can be a chemist, for there is something so much more fascinating in Botany than in any other science, that in summer it is sure to ~~cause~~ a feeling of indifference, if not of disgust for all other pursuits.

When do you commence your summer campaign, and where will it be? Has Dr Gray departed for the South yet, if not give my respects to him also to your family and believe

with great respect

Yrs J. W. Bailey

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

West Point. Nov 17th. 1838

CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Dear Sir

I received this evening a package from you containing the second part of your valuable Flora, I have not had time to study either part yet but I am satisfied from what I have seen that you have supplied one of the greatest wants of the scientific world, and if you are not recompensed for it not only by fame, but by a pecuniary manner also, it will be disgraceful to our country— Can it be possible that edition after edition of Eatons miserable trash shall find a ready sale while it is difficult to get 300 subscribers for your truly scientific work? Verily! locofocoism is not confined to politics—

Majr Delafield is now absent, but when he returns I shall show your work and insist on its being placed as a national work in the Library of our only national Literary Institution.

The absence of the Supt prevents my making any definite statements with regard to Nuttalls cabinet. When he returns I will submit the subject to him, I would be glad however to know something more about the cabinet— Your opinion concerning its value is enough to satisfy me, but it would of course be necessary to have more

Thomas, Gen. as far as page 468. And published last August in Phil. I have only one copy, which is at home— I should be very glad to show you the book & consult you on many points of interest— but as it is now many whenever you can make it convenient to call with me I shall be glad to see you— I have done with the Salix & will send you the specimens

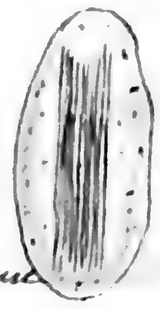
information with regard to the nature of the specimens, the proportion of rare & costly ores, gems, and minerals, whether the specimens are exclusively mineralogical or partly geological, and finally as the funds on hand may not be enough to pay for the whole cabinet- whether a selection from it would be allowed— You must be aware that in buying many cabinets you must take a great deal of mere rubbish, and as we have enough of this already, I have thought it would be better to improve our present cabinet by the purchase of rare and valuable specimens, than to have to pay for many things of which I have now full enough, by purchasing entire cabinets.

We are greatly in want of geological specimens, particularly specimens illustrating the mineral and fossil content of the great lias, oolite and chalk deposits of Europe— Do you know any way by which we could purchase specimens from the most remarkable deposits in England, France, Germany, Italy &c.?

With regard to the "Fissines",— your observation on the dried leaves of the Arum confirms my own results obtained since I saw you, for I examined soon after my return, a leaf of Leconta which had been picked several weeks and found the "things" as active as usual, I then took

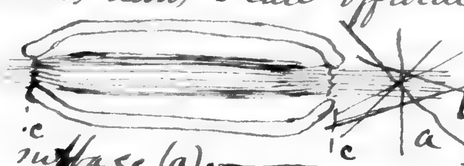
from my mass of dried rubbish (I will not dignify it with the name of Herbarium) a leaf of Lecontia which had been dried more than a year, the bifurines were very far from "torpid" I assure you, on the contrary they appeared to perform as well as in the recent plant. They are also just as active when extracted from leaves which have been macerated (or weeks): On examining these I, on several occasions after the raphides were all emitted, saw small particles issuing from the same orifice which proves that a liquid is ejected from them.

RESPONDENCE
RIUM
NIVERSITY.

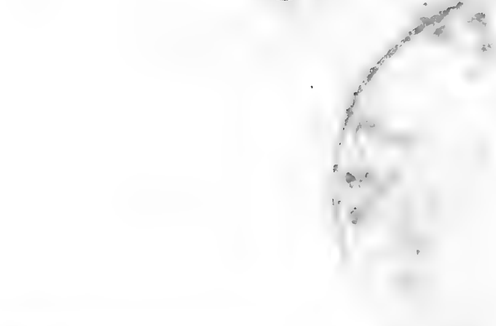
I have at last found these same strange organs in a family of Endogens not very closely allied to Aroideae, viz in Pontederia cordata. I detected them in the dried leaf of a specimen picked last summer, these organs did not perform as in Lecontia, but a glance is sufficient to establish their identity. They appear somewhat larger than in Lecontia, they present no appearance of orifices and I have not seen them discharging their raphides This sketch shows their appearance.  — As these things may be found in dried specimens I hope you will amuse yourself this winter by seeing if they exist in all Aroideae & Pontederiae, I should not be surprised if they are found in Alismaceae particularly in Sagittaria, I have however no specimens to examine — I really must make a herbarium for every writer I want to examine some plant which I cannot get hold of — I transcribe for your amusement Raspails account of the bifurines It is a fair specimen of the disgusting egotism, envy, misrepresentation and falsehood of this strange fellow.

In his index to the plates of Nouv. Syst. de Chim. Org. 2me edit. we find this "Fig 33-35 Cristaux pris a l'Academie pour des cellules, et ses éjaculés pris pour des cristaux" The text (tom 3e. p. 595) is in good

keeping with this- It is as follows- "4243. Mais l'influence des illusions est une hydre qui renaît sous une [redacted] forme nouvelle, immédiatement après qu'on a fait tomber l'ancienne. Cette reflexion s'applique à la lithotine de Turpin, micrographe académique, qui ne manque jamais ces occasions de malheur pour la nomenclature. D'après Turpin les vegetaux du genre Caladium possèderaient une nouvelle espèce de cellule élémentaire, qui jouirait de la singulière propriété de pondre par les deux bouts, lorsqu'on la place isolée sur l'eau du porte objet, des faisceaux de cristaux de phosphate de chaux, que l'auteur avait pris si long temps avec Decandolle, pour des organes. Ces cellules raphidifères s'obtiendraient de la surface inferieure des caladium, lorsqu'on ratisse l'epiderme avec la lame du scalpel. Les ratissures placées dans l'eau offriraient alors çà et là des corps d'une forme analogue a celle qui



représente la fig. 35. pl 17. vomissant, par les deux bouts perforés, (cc.) des aiguilles qui s'isoler et s'entre croiser à la Avant d'expliquer de la sorte de la phenomène, il fallait faire plus que de se contenter de voir; il fallait surtout s'assurer d'abord du règne auquel appartient la substance observée: c'est ce que nous avons fait. Nous avons pris pour sujet d'étude un caladium du Jard.-des-Plantes. Nous avons retrouvé en effet les cellules en question (fig 33. pl 17. nous avons vu s'échapper dans l'eau une substance (a) hors d'un cylindre opaque (c). Mais la substance qui s'échappait ne se composait rien moins que des aiguilles cristallines de phosphate de chaux; celles-ci proviennent des autres tissus, et se trouvent dans l'eau avant que rien ne s'échappe des



Dr. John Torrey
corner of Prince & Mc Dougal Sts
New York

TORREY CORRESPONDENCE
UNIVERSITY.

prétendues lithotines; avec un peu plus d'attention, l'auteur aurait vu que la substance qui s'échappe finit par se confondre avec l'eau, en prenant peu à peu son pouvoir refringent. Le canal (c) est un canal vasculaire coupé par les deux bouts, et qui cède a l'eau sa sève en devenant perméable à l'eau de part en part. J'ai laissé dans l'acide nitrique, dans l'acide sulphurique, dans l'acide hydrochlorique le canal (c) a fini par s'y ulcérer et par s'y dissoudre graduellement, en perdant graduellement son opacité; et après le plus long séjour le champ (b) du corps est resté inaltérable - J'ai fait bouillir de ces corps dans l'acide nitrique tout y a disparu a l'exception de l'ecusson (b). qui s'est presenté alors sous la forme de la figure (34 pl 17);



l'ecusson (b) est donc un plaque inorganique adherente au vaisseau (c) sur lequel elle s'est incrustée - Lorsqu'on ratisse l'epiderme, cette plaque de quarte cristallaire, si Je puis m'exprimer ainsi entraine avec elle la partie du vaisseau adherent, vaisseau qui s'ouvre alors par les deux bouts et est capable de laisser échapper dans l'eau tout ce qu'il renferme; mais il ne renferme pas la moindre quantité de cristaux aciculaires de phosphate de chaux, lesquels proviennent [redacted] du voisinage et d'un autre centre d'incrustation." What do you think of the "hydre qui renaît sous une [redacted] forme nouvelle" after such statements as these. compared with what you have seen for yourself? ——

Rec'd Nov. 23rd.
and 24th

West Point. November, 19th 1836

Dear Doctor

BOTANICAL LABORATORY COLUMBIA UNIVERSITY.

I hasten to answer your kind favour which I received this morning. I have just seen our Lithographer who says that if I can execute the drawings upon transfer paper which he always has ready, he will print the drawings at from $3 to $4 per hundred according to the number of hundreds required, and there will be an additional expense of about 1½ cents for each sheet of paper ~~he~~ must however yourself The paper you ~~will~~ procure at Felts of such quality as you judge most proper. The only question then is, If I will make the drawings, I can only say that "I will try", and if I can execute them in a suitable manner it would give me the greatest pleasure to do so. Whatever I can do to promote the advancement of a science to which I have been indebted for so many happy hours will of course gratify me much. It is sometime since I have drawn any, and I have no experience in drawing upon transfer paper, but if the drawings are in outline, or are line engravings I think it not improbable that I may succeed tolerably well. If therefore you choose to trust the drawings to me and are willing to run the risk of their being done somewhat roughly, and will not become impatient on account of such delays as my official duties may cause, I will most cheerfully attempt the job. It will of course be necessary that the drawings sent to me to copy, should be accompanied with at least that portion of the text which they are intended to illustrate, that I may judge of the importance of each line and know where most accuracy will be required. The paper and drawings can be sent safely by Sloop Intrepid Capt. Faurot which sails every Saturday from foot of Duane Street.

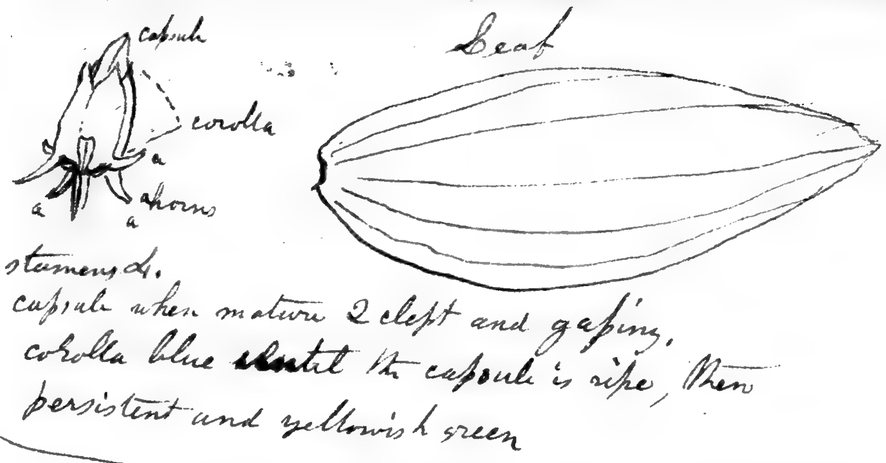
I am very much pleased to hear that there is a prospect of the publication

of a Botanical Journal, as I hope under your particular superintendance, such a work is certainly needed, and contributors for it would be found in plenty. As Lithographic printing can be executed in New York, Botanists at a distance might provide themselves with transfer paper and Lithographic ink, and transmit the drawings thus made, from any part of the United States by mail. and thus the Journal would become a valuable depository of sketches of all our most interesting plants. I had intended to send some drawings in this way to Silliman's Journal but he informs me that as there is no Lithographic printer in New Haven Such drawings as I have I could send to the Editor of the Botanical Journal who could select from them such as are of interest, and draw up the description himself, for I am too well aware of the superficial extent of my botanical knowledge to attempt any thing at present as a writer upon the subject, Indeed the disadvantages of my situation are so great that I am rather retrograding than advancing in my favourite science, Nearly all my time is employed in Chemical practice and study, and thanks to the judgement of our Superintendant I have now not only the head work but much of the drudgery of the Chemical Room thrown upon my hands, As Ward (the man employed in the Chem. Room as an Assistant) had by many years experience become a most valuable aid to us, it was deemed proper to transfer him to the Adjutants office as a common clerk! while ~~[illegible]~~ our soldier who does not know an acid from an alkali is put in his place!!! Indeed Doctor you made you a fortunate escape from this place, where you would have forced like me to "lose good days which might be better spent

To waste long nights in pensive discontent
To feed to day to be fed back to morrow
To feed on hope, to pine with fear and sorrow" &c &c.

One of the evils of my situation which I feel most sensibly is the want of access to a well regulated library. Will you believe it the only Scientific Journals now received at the Library of the United States Military Academy are Silliman's Journal and the ~~Franklin~~ Journal of the Franklin Institute, I have not seen a number of the Annales de Chimie et de Physique since November 1834! "L'Institut" and the Reports of the British Association I hear of in the newspapers but that is all— Again I am styled Act'g Prof'r of Chemistry Mineralogy and Geology! yet the only modern work on Geology to which I have access is Bakewells undigested treatise, I have in vain endeavoured to have Lyells, Brongniart, Buckland &c &c &c. purchased, But it is no use to grumble. I have done little in the Botanical line since I saw you, While in Providence the summer I visited the locality you mentioned to me at a pond near the Smithfield Turnpike, I have forgotten the name of the plant but it was of a new Genus of Cyperideæ, I could find nothing like it, but found abundance of Leersia oryzoides which is not generally credited to the Rhode Island Flora although it grows in the greatest profusion around the sandy ponds near Providence, I also found Cantzia lineata very abundant on the salt marshes on Seekonk river near Providence, also at the head of Providence Cove, between "Sandy Bottom" and the new State Prison. It also grows near West Point on the shores of the Hudson, While in Maine this summer I made an excursion into the Wilderness to visit Mount Katahdin the highest mountain in the State, I hoped to find something of interest among the alpine plants I expected to find upon it, I was disappointed however as I broke down before reaching the summit and could only judge of what might have been seen on the top by the account of my companion, who brought down Empetrum nigrum and Vaccinium Vitis Idæa he said there was also a large bed of Grass directly on the summit, but did not bring any specimens The most interesting plant I found on this excursion was what I believe is Swertia deflexa, It is certainly one of the Gentianæ and has a blue corolla with 4 horns, and I find none of the Gentian except S. deflexa possessing this last character, The descriptions with which I have been able to compare my plant are vague and very short, but I have no doubt that it is S. deflexa although that is described as having a "yellowish green" corolla, I will send you specimens when the drawings are

returned. You can tell however by this drawing if I and specimen correct
Please inform me.



capsule when mature 2 cleft and gaping,
corolla blue ~~when~~ until the capsule is ripe, then
persistent and yellowish green

This is the first time that the S. deflexa has been noticed in New England to my knowledge. Its most southern locality I believe is on the Penobscot river is near Nickatow, an Indian name for a settlement where there are two log cabins— I was more than a week on the Penobscot and in the pathless forests bordering it, living on fat pork and camping out, I often wished for your company as your doubtless would have found some prizes among the grasses &c which did not attract my attention on account of the little time I have had to study the obscurer parts of botany—

Dr. John Torrey
Mc Dougall street
New York

single

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Whenever you and your Lady can visit West Point, we would be very happy to receive you at our house and I would be delighted to roam about these hills with you. If a list of such plants as I have noticed with their localities and time of flowering will be of any use to you I will try to draw one out, but you who have the whole world and the Rocky mountains to furnish you with plants can derive but little use or information from what I can send

Please write soon and send the drawings if you choose to trust them to me.

I am with great respect
Yrs. J. W. Bailey.

P.S. I have recently received a new specimen in the shape of a fine daughter.

West Point Oct. 10th. 1840

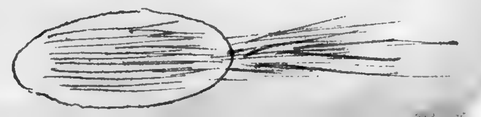
HERBARIUM
COLUMBIA UNIVERSITY.

My dear Friend

I received your letter of 25th ult.° sometime since, but have not yet got the package containing Meyens book - Perhaps it may come up Monday with some things I expect from Chilton. I am very anxious to see it.

I went up to Downings last Saturday and took my microscope up with me, I was received with great kindness and passed a very pleasant day within doors, but was disappointed by rain from examining his plants much. He gave me however a bouquet which served me to study for a week and which furnished me a number of curious results. I was not aware that Downing had so much taste, his house is a perfect model I found him engaged in drawing on blocks for wood engraving, and he informed me that it is not necessary to ink the drawings, a hard pencil drawing being sufficient. This encourages me to attempt some drawings for you, and if you will select some family to begin upon that is not too extensive, I will make a trial which will enable me to judge how well, and how much, I can do.

I examined the seed of Galium as you directed and was much interested at the sight of large vesicles filled with acicular raphides, and in general appearance exactly like the "Biforines" I could not get them to discharge the raphides however, until I put the compresser to work upon them, they then emitted them rapidly at the extremities of the vesicles thus.



Have you ever noticed that the ripe seeds of some species of Galium taste just like Liquorice?

I have just found another marine alga in the Hudson River and it proves quite a puzzle to me, it is not in fruit so that I can only work it out by its habit and general structure and thus far these have not enabled me to determine its genus, In its general appearance you will see by the specimen sent that it resembles a Cactus in the manner the divisions of the frond are arranged, yet it is not the least like Calenella Opuntia of Greville in structure neither is it at all like Chylocladia kalifornis or C. articulata. The frond instead of being gelatinous and hollow as in the above named plants is plane, densely reticulated on the margin and having an articulated midrib of several rows of cells, so that it really seems to unite the characters of Polysiphonia and Delesseria At each of the constrictions of the frond there is a bunch of clavate filaments, which may be concerned in the fructification – no capsules or granules perceived, I shall save about 50 specimens of which 20 or 30 are at your service – Send me in this letter, and will bring others down with me when I visit New York which I hope to do next week with Mrs Bailey and our little daughter We expect to be down on Wednesday 16th and if perfectly convenient to your family we will do ourselves the pleasure of passing a night or perhaps two at your house if it is not in every way pleasant and convenient for you to receive us at that time, I rely on your friendship to say so, with all frankness and sincerity, and we will then stop at Cozzens' and see as much of you as shopping and business will permit. Will you oblige me by sending me a line on the reception of this to let me know if you can receive us – and if you can, if I had better bring my microscope also?

TORREY CONTRIBUTIONS TO SCIENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Rec'd Nov. 6 Th
Ans'd. Nov. 9

West Point. Oct 31. 1838

Dear Sir

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY

I have been engaged, since the reception of your letter in packing up for yourself, Dr Gray and some others a lot of Infusoria from various localities I received lately from my friend Owen Mason Esq - (President of Providence Franklin Society) a number of specimens some of which were obtained by himself in the neighborhood of Providence and others were from Dr Jackson who discovered them in great abundance in Maine, apparently without any knowledge of my having previously found them at West Point. Dr Jacksons letter is quite interesting and shows what immense deposits of these curious matters must exist throughout all boggy districts.

Dr J. remarks "It is frequently mistaken for Magnesia, and has been sold as such
" for more than 20 years past. Its Ant-acid properties however are not very
" marked but it may literally act as an absorbent - The first specimens brought to
" me were sent by Apothecaries who suspected that it was not pure Magnesia
" I analyzed it and informed them that it did not contain a single
" particle of that substance, which created no small surprise to the parties
" [redacted] the only doubt was about supposed foreign mixtures with it.
" Numerous localities of this matter in its purest form exist in Maine
" where many Hundred millions of tons of it may obtained - Nearly every

peat bog and swampy place not full of bog iron or blue clay is underlaid by
" this matter in a greater or less degree of purity than is shown by the specimens
" sent - In New Lemerick, near Newfield York County Maine, the purest white variety
" is found vastly purer and lighter than any I now send you." Dr Jackson adds
that "this Hydrate of Silica is nearly pure containing but a trace of Alumina and
Manganese" I have detected both these substances in the specimens from West Point
Jackson says he was ~~[illegible]~~ disposed to believe that the siliceous scales were siliceous
relics of vegetable matter, rather than animals but adds "I may be wrong and
probably am, if the living ~~animal~~ insect has been traced out analogous to the
fossil casts or skeleton". Dr Dauleny first gave Dr J. specimens of the
European ~~specimens~~ forms which like those you gave me, have proved the seeds for an
abundant harvest. The list ~~[illegible]~~ with the specimens for you and Dr Gray,
will explain the localities &c of the matters sent, and I have sent you, I trust, enough
to distribute economically among your friends - A thousand or two is enough for
any one - I have also made up parcels of these same matters for several
gentlemen of science in Europe, hoping that Dr Gray may find opportunities
for delivering them. I hope Dr G. will also distribute portions of what I have sent
him to such other persons in Europe as he may think likely to prize them.
I regret that as the season is now past for preparing the ducts of forms

ABBEY COL
HERB
COLUMBIA

~~and~~ I shall be unable to send you any specimens of these, as I have not a single specimen left of those I prepared last spring and summer. I would be very glad therefore if you and Dr Gray would part with yours and add them to the bundles for Brown — Lindley & Bronguiart — Will you also send to Ehrenberg the specimen of Meridion circulare  which I sent you some time since. I will replace all these by far better specimens next spring.

I would like to have Corda have some of the above affair, but have not enough left to make up a package for him — Perhaps Dr Gray will supply him.

I regret that our package from Silliman has not arrived — He usually sends me about a dozen extra copies, and I wish I had them now to send you some of

I received Mitchills apparatus some weeks since but have been so very busy as to be unable to try it until a few days since, when at the first trial I made a piece of solid Carbonic Acid about as big as a hens egg. I have failed once or twice on account of the troublesome stop cocks which under the tremendous pressure will leak unless very great care is taken, I think with the experience I have now had I shall be able at the next trial to make a pretty good snow ball of CO_2. Please tell Dr Gray that I believe it will be as well to get Majr Delafield to order Chevaliers Microscope for me, as it will save trouble and duties — If Dr G. however finds any exquisite single lenses

CORRESPONDENCE
LIBRARIUM
OF THE
UNIVERSITY.

which are not at a too enormous[a] price he may get me one[a] two[b]. He knows my wants for they are the same as his own and I will trust to his judgment as regards price. – I have been unable to find any other trace to look for the "biforines" in, but have no doubt of their existence generally in this family – I have looked in vain for them in other Monocot.s

Dr. John Torrey
comm of Pins & Mc Donough
New York

Dr Gray has my sincere good wishes for the safety and pleasure of his tour I shall probably be unable to see him before his departure – I hope to hear from him occasionally while in Europe.

My best respects to yourself and family

I shall be very glad to get some of your Bergen minerals

C. S. I have sent the package down per Highlander directed to care of Dr Chilton – please call there Monday afternoon for it –

Very truly
Yr friend J. W. Bailey

HERBARIUM
BROWN UNIVERSITY.

Recd. ... Ans. 25th.

West Point. Sept. 1st. 1840

21

HERBARIUM COLUMBIA UNIVERSITY

My dear Friend

I was right glad to recognize your well known hand in a letter brought me a day or two ago, and much pleased to hear that you are now all well. I was under orders when I passed through New York or I should certainly have given you a visitation, for I had much to talk about with you, and was besides desirous to know how you all were. As it is not probable that I shall be able to get to the city very soon I must satisfy myself with a long talk by letter - I hardly know where to begin, but suppose I may as well dispose of personal matters first Well then - we arrived safe in Virginia, but Mrs B. was so exhausted by the journey that she had to be lifted out of the coach and immediately fainted on entering the house - She however recruited very rapidly after the journey, and when I left was gaining health and strength very rapidly. I left my whole family in Virginia boarding in the country, where they will remain until October, or in case Mrs B's health is not restored, they will remain all winter - I, in the mean time, am keeping a kind of Bachelor's hall, eating my breakfast and tea in my own house and dining at the Hotel - My house seems lonely enough with no one in it but myself but I am willing to sacrifice my own comfort, if it will be of any benefit to my good Lady - Now I will mention some of the things I noticed this summer which will be most likely to interest you - Near Fredericksburg Va I collected large quantities of silicified wood in a remarkable state of preservation - Without any grinding, or polishing but by merely putting on a piece of glass, a drop of water, such fragments as may easily be broken off with the point of a knife, it shows every part of the vegetable tissue perfectly preserved or rather replaced by silica - The wood proves to belong to the Coniferae, showing in the most beautiful manner the concentric circles on the glandular fibre - This is I believe the first determination of any of our fossil woods The formation to which it belongs is the "Upper Secondary Sandstone" of W. B. Rogers and contains stems of Cycadae also (vide Rogers) - I shall put up a good lot of the specimens for you as soon as I have leisure - While in Virginia I examined numerous plants with

my microscope and was pleased with observing a very beautiful and distinct circulation in Circaea lutetiana, It is most distinct in the hairs on the lower part of the young fruit It is not unlike the currents in Chara, proceeding up one side of a hair and down the other; There are frequently pretty large particles (starch?) (nearly of the diameter of the hair) moved along with the current. I was in hopes to find, on my return some of the plant in a proper state for examination with my new microscope, but the specimens I have found are all too old and dry

While on a tour across the great ridges of Virginia to the coal mines of Frostburg in Maryland, I had an opportunity of visiting the somewhat celebrated Ice Mountain of Hampshire Co. Virginia - One side of this mountain is a natural ice house! where ice may be got at midsummer by digging but a short distance, sometimes only a few inches into the ground - The side of the mountain at this place is covered with an immense mass of debris from the sandstone rock above, and being somewhat shaded, the snow and ice which gets packed between the masses in winter thaws but partially in summer - There is distinct impression of cold on putting one's hand a few inches from the ground - I was pleased to find here in full flower (in August) my old acquaintance and favourite, the Linnaea borealis, growing in the greatest profusion in company with Dandyera pubescens &c. at the base of the mountain. My geological tour from the Eocene tertiary below Fredericksburg Va across all the formations to the coal measures near Cumberland Md was very instructive and pleasant to me. I saw some magnificent escarpments presenting every variety of synclinal and anticlinal structure, and even in some instances waved or contorted stratification thus: Here was a tremendous wrinkling of the earths crust when our Appalachian rocks took their present position - Young Silliman sent me while I was in Virginia a copy of Weavers abstract of Ehrenbergs late writings on the Polythalamia, published in Lond & Edr Phil Journ Have you read it, It is full of novel and startling facts - The pyramids of Egypt &c, the drifting sands of the African deserts &c - The downs of the sea shores &c &c prove to be derived from these Polythalamia (alias Foraminifera) similar to those of New Jersey & Alabama - By the way - I have found the same things in calcareous marl from the Upper Missouri brought by Mr Nicollet, and very beautiful species in a

specimen labelled "Prairie chalk from ——— Mission Station Upper Mississippi"
which was sent to me for examination by young Silliman. These discoveries connect
themselves quite opportunely with those of Ehrenberg. I will put up some of these things
for you at my earliest leisure — I spent two days in Philadelphia on my return,
I attended a meeting of the Academy of Nat. Sc. and mentioned the silicified wood and
the Polythalamia to them — The next day, I spent in part with Dr Goddard with
our microscopes, We got materials to work with, from a pond near Broad St where a rail
road turns out of it. I was much pleased to find at this spot immense quantities
of that most singular Alga the Hydrodictyon utriculatum, I had never seen it
living before. It is a net like structure in shape like a large purse, the meshes being
hexagonal or pentagonal and of all sizes. Will you look in Meyens work for me and
see if there is not something new about the growth and development of this plant.
I have seen the account somewhere lately and it would be worth republishing since
we have the plant in this country. — I went to Princeton expecting to see you there
and to spend a day or two in company with you and Prof Henry. I [redacted]
and passed a very pleasant time at his house though regretting that [redacted]
were not there also. We took a ride out to Rocky Hill and I procured numerous specimens
illustrating the curious alterations of the rocks by the trap dike. We spent one evening
over the microscope, quite pleasantly. — You inquire whether I will dispose of my
microscope. I consider it as already engaged to a friend in Providence, if however he
should not wish it I would be glad to get it into your hands, for I can recommend
it highly. I want you however to see my new one, It is first rate, and shows things
that the other will not reach, such as certain lines on scales of Podura, minute veins
in which the circulation in hairs of Eupatorium is carried on &c &c. As I am a bachelor now
I have a whole house at your service, if you will run up and "live with me and live as I"
I shall be glad indeed of your company. Extend the same invitation to Dr Gray. I long to
hear him talk about his trip — Does he ever hear from Luckett now. I sent L. two
packages one of which I know he received, but he has not yet acknowledged either

What do you think of the pretended conversion of Carbon into Silicon?— Possible but not probable? Have you yet seen Lyell?— send him this way if you get hold of him Give my kindest regards to all your family and believe me both there and your sincere friend J. W. Bailey

I send enclosed a small specimen of Hydrodictyon also a fragment of a larger one, both placed on the same piece of mica— magnify them —

and forever

Dr. John Torrey
Corner of Prince & M.c Dougal Sts
New York

WEST POINT
SEP 3
N.Y.

West Point. Sept. 13th. 1840

28

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

My dear Friend

We have now delightful weather and I think a trip into the country will do Mrs Torrey and yourself good, I hope therefore that you will pay the promised visit soon. Mrs Bailey says she would be very glad to have you come this week (say on Tuesday 15th inst.) if convenient, It would give us pleasure to have all your family, but I must let you know exactly our capabilities, and you can then judge which of the chicks must stay at home We have a room for you and Mrs T. with a crib for "Herby" and can put the nurse in a garret room, We have besides a small room in which we can put two of your daughters, provided they can sleep together in a bed which is something like Berard's turkey, "too large for one and not quite large enough for two"; as however they are not very bulky I suspect they could manage well enough. We are now provided with servants and Mrs Bailey is quite smart so that, while your visit will give us great pleasure, it will put us to no inconvenience

If you can come up on Tuesday, please let me know by return of mail, and if that time is not convenient please state how soon we may expect you.

The trip to Staten Island afforded me a number of good things. I found that a portion of the more delicate algae had decomposed, but I was enabled to recognise many of them, among them were fine specimens of Ceramium diaphanum, et rubrum, Polysiphonia elongata?, a Sphaerococcus, and abundance of a Chylocladia C. clavellosa? (Gastridium clavellosum? of Lyngbye &c)

I put the Lemna in a tumbler of water, immediately on arriving here, and it has continued flowering every day since, I have consequently had a good opportunity to study its flowers and fruit,

I have satisfied myself with regard to the flower, pericarp and testa, but the little embryo troubles me somewhat still. Perhaps we can make it out together when you come up. Attached to the roots of the Lemna were various Infusoria & forms entirely new to me,

I have lately noticed a most singular mixture of marine and fluviatile species of plants and animals in the Hudson River near this place, It would somewhat puzzle a geologist to class the formation by the organic remains, if they should become fossilised, While the abundance of Vallisneria, Potamogeton &c in the water, with Lymnea, Physa & Planorbis shewing the shore, point out a fresh water Flora and Fauna, we find associated with them an equal number of marine plants and animals, such as Balanus (abundant on rocks and even adhering to Vallisneria), a marine Zoophyte exactly like one I saw at Stonington, abundance of Achnanthes brevipes and other marine Infusoria, and for the marine flora we have Enteromorpha compressa and last not least in interest a very beautiful Polysiphonia! literally covering the rocks below low water mark, I have collected a large number of specimens of this elegant plant and will supply you with as many as you want.

I have got also a number of specimens of Limosella (in flower) and Corallina (chiefly in fruit) also flowers and seed of the Pelvia slate of Antirhinum.

I was quite interested the other day in tracing the gradual development of starch in the common Lima bean

I first examined a very young pod and bean, and found starch quite abundant just beneath the cuticle of the

pod, The seed contained scarcely any, 2. Pod further advanced, starch much diminished in quantity

and small globules of starch abundant in cotyledons, 3 Full grown bean (state used for boiling) the

starch had entirely disappeared from the pod, but the cotyledons were crowded with large globules of

starch. May we not conclude from this that the pod is a reservoir of starch for the young seed, and

that the nutritive matter furnished to those who eat "snaps" is nothing but starch.

I wish you would bring up with you the Flora of Cape Town, I saw in it a new distribution

of Algae which I would like to copy.

There are a good many Asters in flower now, which may come in play about this time

in your Flora, Your box is here for you to collect in

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Give our love to your family & Dr Gray. Don't fail to come

Yours sincere friend

J. W. Bailey

Dr. John Torrey

corner of Prince & McDougall Sts

New York

West Point. Sept 21st. 1837

Rec'd Sept 28th

Dear Doctor

I sent down to Chilton a few days ago a package for you containing a few plants, If it has not been handed to you please call for it, I had not time to write to you sooner to inform you I had sent it I am very busy at this time with the course of experiments and have scarcely any time for any thing else.

It is currently reported here that Prof. Thayer is to be ordered here again as Superintendant, and it is certain [redacted] ent incumb-ent or -vance, will leave. It is then to be hoped that a better order of things will be established,

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

I am in great haste

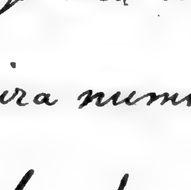
Yrs with great respect

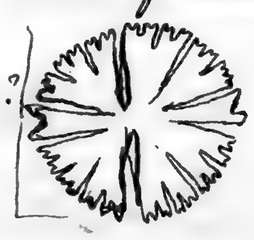
J. W. Bailey

Re? Sept. 10th 1839

West Point Sept. 1839

My dear friend

I have been at home about two weeks, and was only waiting to get a little leisure, and my recollections of what I had seen and done, a little disentangled from the confusion produced by a hasty voyage, before I reported to you by letter - I was much pleased with the reception of a letter from you yesterday, and to hear that you are all well. If you have patience to follow me in a hasty account of my peripatetics, here it is - I started from W.P. late in June and took my family to Providence where I left them with my brother, I staid in Prov. a few days and indulged in my hobbies, Infusoria & Algae. I found the bottom of Providence Cove almost paved with Meloseira nummuloides? () and several other siliceous bodies - Achnanthes brevipes was very abundant, this 
A. brevipes

is marked like a Navicula and is, I feel confident, a pedicelate animal. I found in the fresh water ponds in the vicinity most of those curious bodies we lately looked at together, such as Echinella oblonga? (), Echinella rotata? () and the curious star shaped Alga? () I also found here all the West Point species of Diatoma, very abundant. I left my family in charge of my brother who promised to see them safe home, and started "solitary and alone" for the "Far West" - I stopped about two day at Stonington to take a glance at Neptunes flower garden, and I found it indeed well stocked, I expected to find many handsome Algae, but had formed no conception of the vast profusion and extreme elegance of the forms which met my eye, growing with all their colours in full freshness and perfection

I literally waded through acres of marine plants rivalling in beauty the most exquisite productions of the land, some were glistening with siliceous infusoria others bore the pink, flower like tufts of a species of Polype (Campanularia? volubilis?) and I found that the study of what I beheld would require years rather than days - Determined however to make the most of my opportunity, I gathered large quantities, reserving them minute study for winter work, I also hired a boatman to take me around the harbour and assist me in fishing up some of the deep water species. We made some fine hauls - I got some Laminaria from Womphassick shoal which exceeded 15 feet in length and were very beautiful and perfect - (This species is called "Cape Ann" by the fishermen = L. saccharina?) Chorda filum 5 to 20 feet long abounds every where - The Breakwater is covered with Dulse - (Rhodomenia palmata) - Laminaria Fucus, several species - Chondrus crispus &c. &c. &c. I filled a large champaign basket with Algae and have them safe here for study - The parasitic siliceous bodies were exceedingly abundant, I found Diatoma

unipunctata?



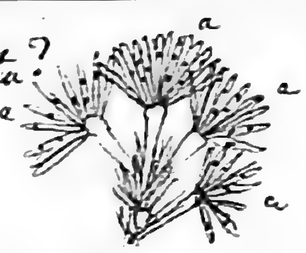
D. unipunctata.

Lecmophora splendida? Jurgensii??



a a a frustules apparently siliceous

Lecmophora flabellata?



a a a frustules apparently siliceous

Several species of Schizonema (a branching filamentous body, filaments stuffed with siliceous frustules) were als. common Meloseira nummuloides was in countless profusion, and buckets of it, might be collected. The undoubted siliceous infusoria were equally abundant, not only living, in the ocean, and in the evaporating troughs of the salt works, but also dead in the earth of an extensive salt marsh. I also found Achnanthes brevipes et longipes, common, and a marine Fragillaria - Pretty fair work for two days. I passed through N. Y. without stopping and proceeded to W. P. where I left my plunder and taking only a small valise started for Wisconsin - The first stop I made was at Detroit where I spent several days I botanised but little as I found the woods around Detroit furnished at this season very few plants with which I was not familiar in the East, and besides I found the mosquetoes were disposed to make themselves familiar also.

I found Algae very abundant along the shores of the river, and Lake St. Clair particularly at the Grand Marais, I recognised most of our W. P. species of Algae & Infusoria in this vicinity - The evening before I left Detroit, Dr Pitcher introduced me to Dr Houghton with whom I was quit pleased and regretted that I could see so little of him. He is working hard - Col. Whiting of the Army gave me some seeds of the Cycas, the root of which is used by the Seminoles for food Do you wish for them? - He also showed me the large roots of a species of Smilax which he says is also applied to the same use - I sailed up to Mackinaw in company with a young man named Bull who is collecting plants for the State, he will probably take the situation of State Botanist. He appears industrious and pretty familiar with plants, but has much to learn yet as he is only a Linnean Botanist. He mentioned to me that he thought he had discovered a new Geranium growing in Michigan on sandy soil - He described it as resembling a dwarf. G. maculatum

I passed several days at Mackinaw in waiting for a steamboat, I found it a very interesting spot, the natural curiosities are many, the historical associations interesting, and there is in addition an opportunity of seeing much of the Indian manners. Upwards of 40 lodges of Chippeways &c were around the shore of the island and their canoes were paddling over the waters in every direction - I found very few flowers of any interest during my tours - I found our Eastern Lygnema, Conferva, Tyndaridea &c exceedingly abundant, but was most pleased with a discovery I made while standing on a wharf at Mackinaw, to admire the matchless transparency of the waters - I noticed in the water a portion of a cedar tree which was resting on the bottom, Every part of it appeared covered with loose waving cottony masses of a yellowish white colour, some of these masses were nearly as large as my fist - Being aware that almost all such appearances were caused by Algae or parasitic Infusoria, I procured from an Indian boy a fish spear and after amusing the savage at my want of skill I speared up a portion of the tree and secured a good quantity of the flocks

COLUMBIA HERBARIUM
COLUMBIA UNIV

An old Indian who appeared to be the buffoon of his tribe, was watching me very attentively and when he saw that I was preserving my prize so carefully, he made strange grimaces and wanted to know if it was "for sick" "for sick" then placing his hands on his abdominal region he said it was for "Squaw sick"

Took the "medicine" home and found that it was entirely made up of long branching filaments each supporting one or more beautiful little siliceous frustules marked like a Navicula. It approaches closely Gomphonema geminata. Its abundance was truly surprising - Nestling among it were many Naviculae & whose forms I have not yet studied carefully - I proceeded per steam to Green Bay (where I noticed Vallisneria in the mouth of Fox River), and joining here a detachment of recruits proceeded on a five day campaign to Fort Winnebago, I had a rough though not unpleasant time - A large portion of our journey was over rolling prairies of great beauty. I found however as I had anticipated concerning the flowers that while the individuals were many, the species were few and these were of less interest than I anticipated. The River oak openings are very beautiful and entirely different from any thing I had anticipated - The whole country resembles a fine park and a carriage can be driven in almost any direction - At Fort Winnebago I found in the Fox River all our W. P. Infusoria and was pleased to see also our old acquaintance Echinella oblonga and the star shaped thing (See figures on first page) The great range of these things here is a curious circumstance - I passed next to Madison - thence 7 miles to City of 4 Lakes where I found one house! Here reside my brothers in law Wm & Henry Slaughter with their families - They have a fine farm directly on the bank of the 4th Lake but they are so far from civilization that they have many privations to endure - After passing two days here very pleasantly and transacting my business satisfactorily, I started homewards via Milwaukie - Between Milwaukie & Madison I saw and carefully inspected one of the greatest curiosities of America. It is a large fort built of baked-brick! the brick made in the ancient manner with chopped straw and the whole construction exhibiting a high state of civilization in its builders. The Indians have no knowledge of the origin of this work - Outside of the fort are many large mounds, and a portion of the land now overgrown with large trees is marked distinctly with large furrows evidently produced in cultivating the soil at some very remote period - This interesting work is on the right bank of the west branch of the Rock River, It has been named "Aztalan" under the belief that it is the lost city of the Aztecs of Mexicans - There is direct water communication from here to Mexico - I stopped on my way back at Niagara and was surprised to find so many western plants located on Goat I &c. Their seeds doubtless were brought down from the Upper Lakes - I found Niagara far grander than I had anticipated, and after giving up to the sublime emotions it inspired, it was some time before I could bring myself to look at minuter works of the Almighty which covered the rocks around me - The rocks wherever ~~with~~ wet with spray are covered with a reddish brown crust which proves to be a species of Alga of curious structure a Scytonema I believe - I found here several other interesting

plants &c but have not yet studied them out – I stopped at Lockport awhile and bought some fine "petrified butterflies" (trilobites) of the Irishmen employed in widening the canal – I went also to head of Seneca Lake – Then returned to W.P. where I found Mrs B. much exhausted with fatigue of nursing a sick child and quite anxious for my return – My boy has been much troubled with teething and summer complaint – My little girl has entirely recovered from her injury and no deformity was produced by it.

As for myself I am in excellent health but about as indignant as a man smarting under military misrule can be Maj. Delafield acting upon the doctrine he openly avows "That he has a right to call upon any officer to work 16 hours a day" and "that he looks upon time and labour as nothing" has thought proper to just about double my duties – In other words he has decided that the courses of Mineralogy and Geology must be taught in addition to Chemistry and at the same time – and yet he refuses to give me the additional assistant which has always been granted –

Dr. John Torrey
(corner of Prince & Mc Dougal Sts)
New York

POINT SEP

HERBARIUM

• Camera Lucida – a Micrometer containing Millimetre divided into a hundred parts! –
Compressor – Water box &c &c. I beg to show it to you – Bring with you any thing new
since July – Will try to find time to secure you Crantzia. Scirpus &c –
worth $10 or $15 dollars and I wish get U.S. to take them, if not I will take them
myself. – I wish you a first rate set of his animals
Give my best respects to your family and believe me most truly your friend
J.W. Bailey

To morrow I shall have to hear recitations from 11 to 1 o clock in Mineralogy and then from 2 to 4 in Mineralogy I have remonstrated in vain, and now in self defence have determined to perform my duties only conscientously, whereas I have always heretofore performed them zealously. I do not intend for my paltry pay to sacrifice health, the interests of my family and all the comforts of life – I am now so disgusted that I would gladly get into civil life. If you hear of a good Professorship let me know – I am very glad that you think of coming up next week – You know that you will always be most welcome – and my den is always at your service – We regret that we could not have the pleasure of a visit from your family this summer, but hope they can come up next October, by which time Mrs B. will be out again. – Dont fail to assure Dr. Gray of my sincere and warm friendship – I have got my Achromatic Microscope – Chevaliers make from Paris. It performs very well – better than Ross & Rospail – and has some good things with it such as

Apr 28
and May 3d

West Point. N.Y. April 25. 1839

Dear Sir

When I left here last Monday for New York I fully intended to call on you, I always derive so much pleasure and information from the time I spend in your study, and in your company, that even at the risk of boring you a little and intruding upon you when it may be inconvenient, I yet neglect no opportunity of calling upon you. Business and accident alone prevented my doing so last week; business in the shape of endless varieties of "shopping" and accident, by causing me to take a sail for two miles into your bay in an open boat, after sunset and with a cold northeast wind blowing, this too at the time which I intended to have passed with you. I went down to the Battery in the afternoon hoping to get some of the "loafers" to fish up for me some of the Algae which grow on the stone, near Castle Garden. In succeeding in this, I was tempted by the low tide to go over to Governors I. where I expected to have a glorious haul I approached the Island, the Algae were almost within my grasp; when one of those machines who move about with a musket on their shoulder opposed my landing, and was too stupid to understand that he ought to call for the Corporal of the Guard to see whether I could land or not, I was therefore obliged to leave, not a little vexed at military discipline

2

I then goodnaturedly but rather foolishly consented that the boat should proceed to put on board a vessel which I supposed was just at hand, a Captain who had taken passage with me, I was in this way entrapped into a long, cold, disagreeable sail, thinking all the time how alarmed Mrs. B. would be at my absence, and vexed at losing the only time I had to call on you— I left a small package for you at Chiltons, containing some specimens concerning which I meant to have had a talk with you; You will however easily see what most of them were made for.

Wiley & Putnam have just forwarded to me a delightful letter from our friend Dr Gray. His account of the reunions of the "microsphists" in London is highly interesting— He mentions that he has got a correspondent for me a Mr Lueckett,— and states that this gentleman has sent me a package by the Great Western which he wishes me to acknowledge without delay. I presume this package is among the things sent to you, if so will you please leave it at Chiltons, and I will write to Dr Gray by the first packet after its reception.

I am afraid that you expect too much of me with regard to the Algae; still, I feel that I am doing something, for almost every day that I find time to ramble any, I find some rare or interesting plant of this tribe, which has not been credited to our Flora— I feel most the want of some book containing good figures of the obscurer Algae, I believe from the frequent

quotations &c in Hookers Eng. Flora. Vol V. Part. 1, which formerly that Greilles Cryptogamic Flora — and the part of English Botany containing the plates of Algae would be most desirable — Dillwyns Conferva — and Lyngbyi Hydrophytologia Danicae and Agardh's Icones Algarum Europaearum. contain drawing of merit, It appears to me that some of these particularly E.Bot. should be in the library of the Lyceum.

April 25th.

I tried to day some hasty expts for a "Daguerreotype," but failed of course. I thought it possible that the sulphocyanuret of iron which loses its colour with great rapidity in a strong light, if in solution, might give a similar action if paper dipped with it, and slightly moistened, were exposed to the action of the Camera lucida. I could get, however, no satisfactory action. With paper impregnated with Chloride of Silver, I got an imperfect representation of a building in the course of three of four hours. One result I obtained may perhaps lead to something useful. I smoked a piece of glass, and then with the point of a needle made a drawing, and also wrote several words, on the glass thus prepared. A piece of paper impregnated with the Chloride of Silver was then laid on the other side of the glass, and being protected on the back (by a piece of tin foil) from diffused light the smoked side was turned to the sun. In the course of a few minutes the drawing, writing &c were completely, even to the minutest lines, represented upon the paper, by the darkened chloride — If now, the statement be correct that the sensibility of the uncoloured portion may be destroyed, as is asserted by an English writer, It appears to me that this will for many purposes answer at least as well as Lithography. It would suit our kinds of drawings better, for it is very difficult to make fine lines on stone. It would also give a valuable method of multiplying copies of merchants letters &c as of course the smoked glass may be used any number of times. and if not rubbed would never wear out. I hope this may turn out as I wish.

RRESPONDENCE
BARIUM
UNIVERSITY

We hoped to have seen you here before this time, and still anticipate the pleasure of a visit, I must again request however that, when you fix upon a time to come up with your family, you drop us a line, otherwise you may catch us in the midst of a house painting scrape,

The Supt has so much employment for all the mechanics here, that we have to take them when we can get them, and esteem ourselves lucky to get them at all.

Dr. John Torrey
corner of Prince & Mc Dougall sts
New York

The shots brought by wagon drivers in Red Bank
The Cat of Meridian
Rose had to give up my residence upon
so that I
Yrs very truly J. Bailey

Mrs Bailey sends her respects to Mrs Torrey, she says that she will do her best to nurse her, and as she has a dozen hens she can feed her on fresh eggs.

Can you manage to get for me through some of your foreign correspondents, authentic specimens of some of the more difficult Algae, for which I will send in return specimens of our own plants. I feel at this time the want of complete series of Diatomaceae, for I believe this group needs a revision, and that they may be arranged best, from characters derived from the form of the frustules, and the invariable markings or lines upon them. These characters being indelibly impressed upon the silica appear to me more suitable, than those derived from

Aug 42

44

West Point. August. Tuesday : 1844

TORREY CORRESPONDENCE
HERBARIUM

My dear Friend

I hasten to inform you and the girls that we have returned from our trip to Sharon Springs and Trenton Falls, so that if the young ladies wish to see the doings here on the 28th inst. we shall be at home happy to receive a visit from them, We can without any inconvenience accommodate them and their male escort, who I hope may be yourself

Mrs Bailey says tell Mrs Torrey that there is no one that she wants to see more than her, She would be delighted to have a visit from her

Please let us know soon how many of you will be here by the 28th, as house room is in great demand about those times, and if you dont come we must take in some other friends who will be less welcome

Mrs B and myself both enjoyed our trip very much. I found Sharon Springs an excellent place for geologizing, it being on the great line of northern outcrop of the New York strata. I was able, in the neighborhood to study in detail a great number of formations from the water lime up to the Hamilton Group - I was disappointed in the Botany, though I should think at other seasons it might be a good region. I brought home in phials some of the red and green and white matters growing in the Sulphur waters.

The green when highly magnified shows excessively minute, crisp & entangled filaments involved in mucus - The red which appears to be a state of the green matter showed only minute granules - The white appeared to be mere particles of sulphur adhering to an excessively fine membrane or filament

I got a letter this morning from Ehrenberg asking my attentions to his friend and colleague "Herr Geheime Regierungsrath" von Raumer, but I happened to be absent when he called - Should he come in your way

you can show him some attentions for the sake of Ehrenberg.

I am to have two assistants this year and hope to be able to work a little more comfortably than heretofore.

Hope the party enjoyed their western tour very much, and that all have returned safely— Hoping to see some of you here soon, I close now with assurances of sincerest regard for all your family

Ever your true friend

J. W. Bailey

West Point. December 12. 1838

CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

15

Dear Sir

I feel so little desire for newspaper notoriety, and think that lovers of science can find so much better employment than personal controversies, that I never intended for a moment to notice Prof. Hitchcocks article concerning the Infusoria, I confess however that it is interesting to me to know if he has been strictly ingenuous in this business, which I would fain believe, from the high opinion I had formed of him as a man of science. Yet there is an obscurity, which the enclosed letter does not fully remove, and I would be glad to hear, if, from your knowledge of Prof. H. who is a stranger to me, you think I can answer the letter with confidence in the good faith of the writer, or whether it is only a sugar plum intended to stop my mouth.

It appears strange that Prof. H's newspaper notice did not allude to your having shown him the infusoria, which the enclosed letter does not allude to the newspaper notice.

I wish you had been up here yesterday to witness my complete success in using Mitchills apps. Having repaired and cleaned the valves carefully and established a greater difference of

difference of temperature between the generator and receiver than in any of my preceding trials, I succeeded completely to my satisfaction and from one charge of materials, (1¾ lbs Bi carb. Soda to 10 fluid ounces of Common Sulphuric Acid) I obtained 7 or eight cubic inches of the solid With this I proceeded to freeze the mercury, which I did in this manner I poured upon the solid in a glass dish, enough ether to give it the consistence of wet snow, I then poured in a portion of mercury which almost instantly solidified, showing upon its surface lines of crystallization, The frozen mercury was ductile like lead until when it becomes short. just before melting as Mitchill states, The mercury in a common thermometer when the bulb was placed in the carbonic snow sunk instantly so as ~~to~~ only to fill part of the bulb, where it solidified and remained some time after the snow was removed.

I have put into one mass 1400 grains of mercury and might easily increase the quantity. I think that I can now use the apparatus as often as I please with almost the certainty of success. It would please me very much to show it to you, but I cannot ask you to come up at this inclement season when the river is full of ice which may close it up in a day

In the spring, you must come, and bring some traps with you

catch some of the liquid CO_2

If you have time to break off for me a few fragments of the leaves of aquatic plants with floating leaves such as Brasenia [redacted], Calomba, Nuphar sagittaefolia, Trapa, and also fragments of Alisma and Sagittaria & Menyanthes, I would be very thankful for them.

Please return the enclosed letter by mail with the slip from the newspaper.

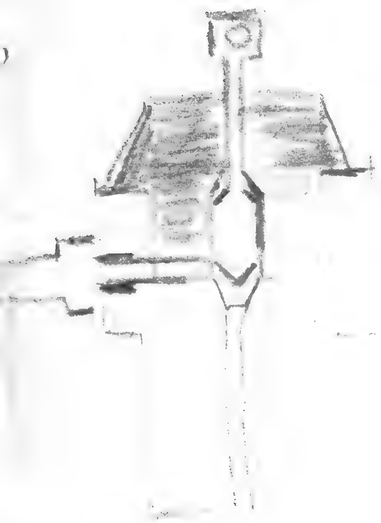
Give my best respects to Mrs Torrey, and my love to the children and believe me very sincerely your friend

S. W. Baily

R. J. Torrey

New York

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.





2 Letters
paid J. W. Bailey

Dr John Torrey

corner of Prince & McDougal St

New York

Ans

Rec'd Feb 16
and Ans 23

West Point. Feb. 15th. 1843

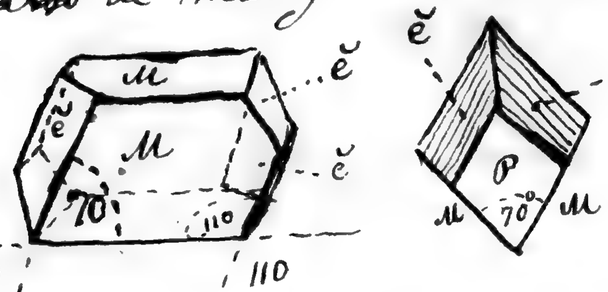
HEBRARY OF THE MEDICAL SCIENCE
COLUMBIA UNIVERSITY

37

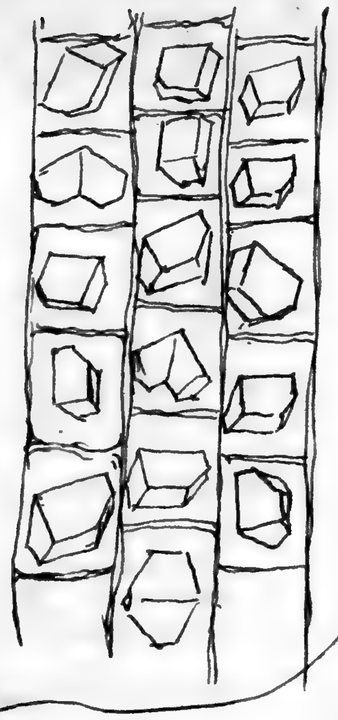
My dear Friend

More than a month has passed since I received your last kind letter, and it is still unanswered, You will believe and excuse me I know, when I say that although I always take pleasure in writing to you, I can not always find it convenient to answer you as promptly as I would wish – We have at last got to work again at recitations after a most tedious examination, and as I am now on the subject of the metals, which requires less preparation for recitation, I have more leisure than usual – I am still at work on microscopic crystals and as I have not much else of any interest to send you I will give you a brief account of some of the results I have obtained, partly because I think they will interest you, and partly because I hope to profit by your suggestions, as I have always done when I have been able to consult you

You will remember how I was led to study this subject, by noticing polygonal bodies in the ashes of many trees &c. Since noticing these I have sought for the crystals themselves in the unburnt state in a vast number of plants – The following are some of the results 1st In the wood, bark & leaves of the greater number of Dicotyledenous trees and shrubs and also in many herbaceous plants there occur vast numbers of crystals of this form.



The figure shows two positions of the same crystals. They are evidently oblique rhombic prisms, oblique from an acute edge and having the acute edges replaced by the planes $\breve{e}$ $\breve{e}$ – The plane angles are 70° and 110°. The rhombic prism of these angles, and quite unmodified is found mixed with its secondaries in the sweet briar and other Rosaceae – To give you some idea of the vast abundance and general distribution of the above forms I will state that I have found them in great profusion in all the following families – viz Aceraceae – Aesculaceae – Aurantiaceae – Betulaceae Balsamaceae – Cupuliferae, every species of oak, chesnut, beech, Carpinus &c, Cedrelaceae – abundant in Mahogany – Cornaceae – Ericeae – Ebenaceae – Frankeniaceae – Hamamelaceae – Leguminosae in every species examined, and generally in vast abundance – Myricaceae – Plataneaceae – Rhamnaceae Rosaceae – crystals particularly large in Pomeae & Amygdaleae, Salicaceae, very abundant in every species Santalaceae – Ulmaceae, Vitaceae, (with linear raphides also) Xanthoxylaceae – Zygophyllaceae (Lignum vitae) – In the thin liber of Locust, Poplar &c These crystals may be seen in situ – See figure top of next page



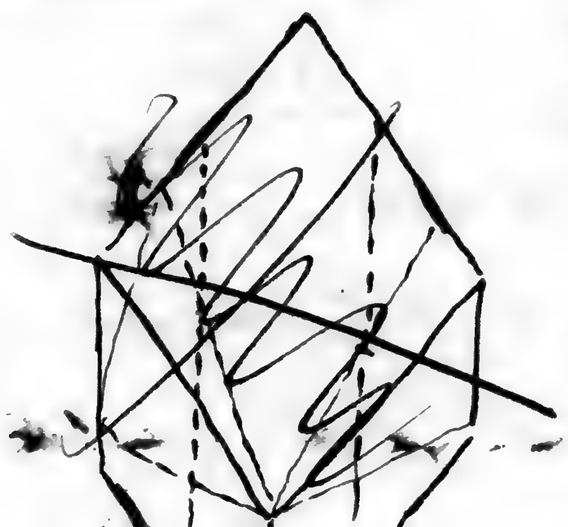
Portion of liber of Populus grandidentata — drawn by Camera lucida. showing crystals in situ.

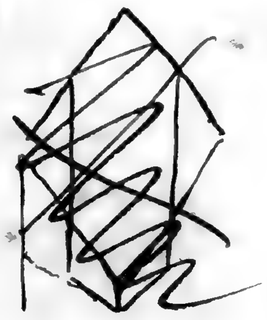
You will see that each cell of the liber has a single or twin crystal in it — and as each cell is about $\frac{1}{1250}$ of an inch square, there would be in a square inch of the liber, of the thickness of this sheet of paper $1250 \times 1250 = 1562500$ crystals, This would be the number if there were not opening, caused by the medullary rays which separate the portions of the liber into meshes thus  Still, if, to make allowance for these void spaces we leave off the 562500, we leave one million! left in every square inch of the liber, and as this liber is often in locust & poplar fully an inch thick how vast must the number be in the bark alone of the full grown tree, But in addition to all this the wood and leaves also contain their myriads — When I reflect that not one of these crystals can form without developing heat and electricity which though apparently minute in quantity, is enormous when compared with the size of the cells in which it is produced, I cannot but think that these little brilliants may produce most important results in vegetation —

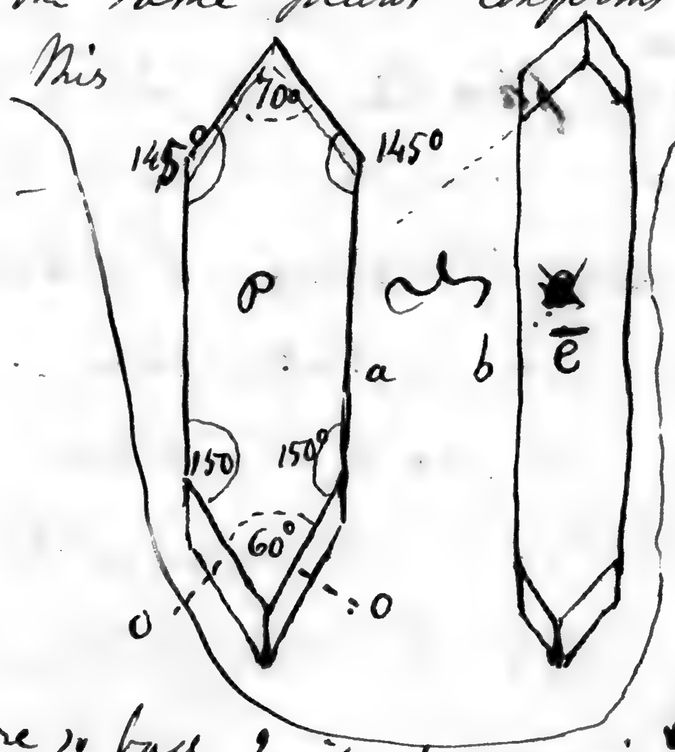
2nd — The chemical examination of these crystals, showed that they were insoluble in water, dissolved freely in mineral acids, produced insoluble carbonates on ignition, and when treated with dilute SO^3 left on gentle evap.n abundance of crystals of Sulfate of Lime, and the residue cautiously evap.d gave Oxalic Acid — There can be no doubt then that they are composed of Oxalate of Lime

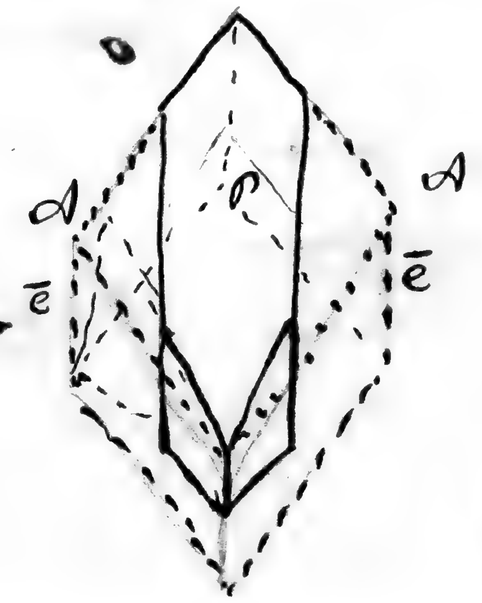
3rd — In a limited number of Families I found the crystals differed very much from those above alluded to, being long prisms with the lateral planes at right angles, and apparently like those figured by Raspail as occurring in Iris florentina. The examination of these confirmed one of the following facts. 1st That these crystals are not, as described by Raspail right square prisms — 2nd That they belong to the same system as those above described, with which they agree in some of their plane angles — 3rd That they are identical in Chemical characters I presume then that they are only modifications of the same primary, and the fact that both kinds often are found in the same plant confirms this view.

The form which I now allude to is this which it appears to me can be derived from an oblique rhombic prism in the manner indicated below.









These figures are so bad I will try again

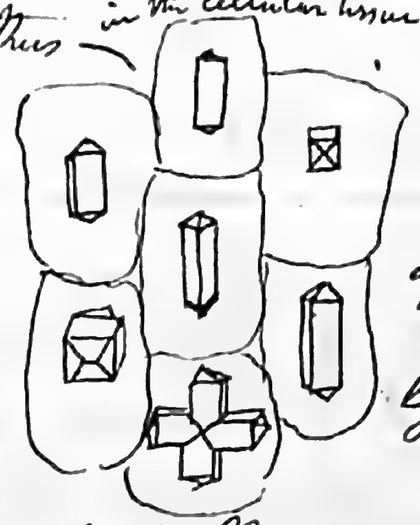
What I would indicate is that the blunt edges of the prism have been replaced, and that the want of symetry indicated & the angle of 60° at one end and 70° at the other comes from a plane on the angles A.A. The families in which this and other derivative forms predominate as far as I have been able to determine are the following - Ericaceae - in Kalmia Frankeniaceae - Fi Laevis - Iridaceae, Juglandaceae - Carya all species - Polygalaceae Ramerin radix, & Rosaceae ? in the S. American bark which you suppose'd to be Quillaja saponaria

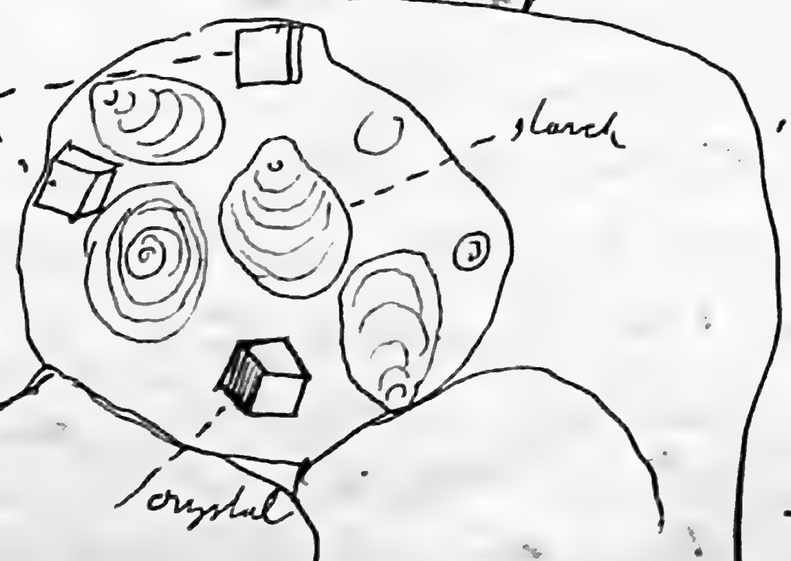
The chemical composition of the crystals in Iris is Oxalate of Lime vide Raspail and I believe you showed that this in the S. American bark had the same composition Left. The other most abundant state of the crystalline matter in plants is in the form of

bunches of crystals thus  - By breaking these up and measuring the angles of the single crystals I have satisfied myself that these also can in general be referred to the same primary as before viz the obl. rhomb^{c} pr.^{m} of 70° & 110° for the plane angles.

The families in which these bunches predominate are - Araliaceae - Bignoniaceae - Cactaceae in Opuntia vulgaris - Caprifoliaceae - Ericaceae in Clethra, Guttiferae, Camellia alba, Grossulaceae Juglandaceae, mixed with long prisms in Carya - but bunches alone in Juglans, Malvaceae, Nelumbo Olacaceae - Passifloraceae - Philadelphiaceae - Polygonaceae, every species - The crystals in rhubarb have been repeatedly shown to be Oxalate of Lime, - Rosaceae - Cotoneaster Salisburia & Taxus, bunches alt. in bark and leaves - Liliaceae - Vaccinaceae

If, as I suppose I have established, all these forms are derived from the same primary and are identical in composition is this not a generalization worth working for?

It must not be inferred however that Oxalate of lime is the only crystallized matter in plants Beautiful dimetric crystals occur in Onion distributed thus in the cellular tissue  The precise nature of these I have not yet made out, but their form is entirely incompatible with those above alluded to - So also in the cells of the common potato there is abundance of little cubes lying among the



starch globules, these - , I suspect these crystals both in Onion and potato to be Phosphate of Lime but have not yet examined them, nor the acicular raphides so common in Monocotyledons, very carefully. - I find I have filled my sheet with

crystals and scarcely room left to say a word about any thing else — I want you to tell me whether these results are worth publishing and if so, to find out what 20 Blocks like those prepared for the cuts in Grays text book would cost, when prepared for the drawings to be made on them — I am anxious also to learn the botanical names of the woods sold by the names of Hyperic Wood, and Cam Wood — Their crystals are like those of logwood and other Leguminose dye stuffs — The more I read of Kane's book the better I like it, There is much which must of course be omitted in using it as a text book, but it is altogether the best book known to me —

Dr John Torrey
College of Physicians &
Surgeons
Broadway
New York

Give assurances of my kindest regard to Prof Henry and family — For your own little circle I shall always feel the warmest friendship. I wish I could look in upon you at Princeton but I am afraid it will be long before I have that pleasure — I see that Lieut Abbot is not yet cured of his Monomania about the "Polar plant" I thought I had said enough to convince him, but seriously I think he is deranged on the subject as you will also when you read his paper in the Nat.l Intelligencer, He has misquoted me too, and made one figure as referring the dandelion and sunflower to the genus Silphium — These crazy people are dangerous — Mrs Bailey is not well but expects soon to be relieved from her burden — She says Mrs T. must not follow her example.

with kindest friendship I remain ever Yours truly J. W. Bailey

HERBARIUM
COLUMBIA UNIVERSITY.

And. Mackenzie

West Point Febry. 27 1841

My dear Friend

I have allowed our correspondence to be suspended for a long time, chiefly because I knew that you were too busily engaged at this season, to be able to devote much time to epistles, and partly because I have been very busy myself. I have, however, nearly got through our course of experiments for the year, and can see my way through at last. I believe too that you must have nearly completed your winter campaign; so without further prelude, or apology, I send this as a renewal of my attacks upon your patience — I hope to hear from you that you have all been well, and that you have passed a pleasant winter. Nothing worth relating has happened here since I saw you last, except the appointment of Mr Parkes of Norfolk to the Chaplaincy - this gives universal satisfaction and each of his sermons is pronounced better than the preceding.

I believe that the statement with regard to the resignation of Emmett was premature for after taking all proper steps to ascertain the truth of the rumour, I can learn nothing definite one way or the other. So I must content myself with pumping the dry pumps of the 3d and 4th sections of Chemistry for a while longer (from Prof Hitchcock)

I have lately received an invitation to attend a meeting of American Geologists & in Philadelphia on the 5th of April, I hope to be able to attend, and it would

add much to the pleasure of my visit, if you and Dr Gray (Prof Henry) could be there also

I hope that this visit will enable me to form some very desirable acquaintances

There are also many collections in Philadelphia which I wish to examine

which I never had an opportunity to see before, I shall endeavour this time to be

in no hurry, as my assistant has volunteered to work for me as long as I choose

to be absent. Do contrive to go yourself or send Dr Gray on to Philadelphia

at the time, I know we (can) pass the week or so very pleasantly and profitably

in that friendly and scientific city.

HERB
COLUMBIA

How comes on the Flora? I hope you are not discouraged, after so good

a beginning — good, I mean so far as your pen and not your pocket is

concerned, the profits are of course inversely as the merit, in this country of ours

which still pays for edition after edition of Eaton's trash.

I have got a botanical recruit for you — I received a few weeks ago a letter

from one Melancthon S Pelit of Fredonia N.Y. asking me if I would be willing

to exchange plants with him — I answered Yes — for I could send him Algae &c

which would be novelties so far inland, while what he might send to me in return

was not a matter of much importance — I fancied that I perceived in his letter the conceit

of a self taught follower of the Linnaean System, and to take a little of this conceit out of

him, I wrote him a letter stating the advantages of the Natural System. His answer

was humble in the extreme and he admitted that he had paid no attention to the Nat. Syst.

which however he promised to pursue in future. Who he is — his age — station &c I

am equally ignorant of, but as he says he is going to botanise this year in

the rich bottom lands of the Castleman's reserve, he may send something worth getting, and at any rate there is a satisfaction in encouraging any one in the pursuit of our fascinating study. I shall send some of our marine Algae and our sea shore plants, which will probably be new to him, If I find him a good customer I shall turn him over to you.

I have scarcely done any thing at Botany this winter — the small fillame of leisure which I have had, barely allowing me to continue my scribbling about the little fellows whose existence has been annihilated by the profound sagacity of Dr Paine. My paper will be ready for Silliman in the spring. I have finished all but two or three genera and my sheet of figures is full to overflowing.

Prof. Hitchcock wished me to prepare a memoir on Infusoria to read before the meeting in Philadelphia — I shall not attempt any thing beyond verbal even if I open my mouth at all.

I have lately examined the hairs on the seeds of our Ruellia strepens, which you have doubtless seen for yourself, are extremely beautiful. Salvinia

I have just been looking at some beautiful multilocular shells (Foraminifera) which I detected among sand & adhering to Algae from Stonington Conn. I found two elegant genera, of pure microscopic shells, which you are aware often form in the fossil state a large portion of immense strata (as at Grignon near Paris &c). I am not aware that any species have been noticed on our coast before. The genera appear to be Quinqueloculina and Anomalina. —— Our river promises to be open in a few days and the embargo will then be off — As spring comes on, I hope you will remember that you and your family owe us a visit, and that you have besides

promised to let one of your daughters come up and spend a week or two with us, I do not wish to interfere with any of your plans as to the time to be devoted to study by your daughters — but whenever you are disposed to give either of them a vacation, then give my invitation to them — My little girl often speaks of Eliza and has even adopted her name, never calling herself any thing but Eliza.

Dr John Torrey
corner of Prince & Mc Dougal sts
New York

concerned

I suppose you know that Bartlett returned late last year — He said that he did not see Sir W.m Hooker or any other person to whom you gave him letters, He got along however very well — The letters given him by Prof. Henry were very useful to him — He has brought out much new apparatus — chiefly optical and astronomical. Give my sincere regards to your family and to Dr Gray. Ask the latter if he has heard from Cuckett lately. I am anxious to know if Q. received a package from me sent last autumn.

I have written to Lardner Vanuxem and had a reply from him — he will write to me by the next steamer — I have also written to Mr Bailey

West Point. Jan.y 4th. 1839

CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY

16

Dear Sir

I am greatly obliged to you, for your prompt reply to my letter, and also for the specimens of aquatics you so kindly sent,

I replied politely to Prof. Hitchcocks letter, but concluded not to ask him anything about the newspaper paragraph, My only allusion to it was a query concerning the species he alludes to as "resembling the earthworm in form"— You ask me not to call you up as a witness unnecessarily, As I shall not bring the matter into court, or at any rate shall only appear as a defendant in case I am attacked, I shall not need to trouble you. I dislike extremely all bickerings and quarrels, and mean to avoid them wherever I can do so without unmanly submissions. I am well aware too, how unpleasant it is to be called in to state circumstances which may cause ill feelings between old friends or acquaintances, and you may rest assured that unless I am attacked, I shall carefully avoid any allusion to your evidence— I have made some hasty examinations of the aquatics you so kindly sent, but have found little of interest yet— I found the "liforines" abundant in Lemna palustris, but did not detect them in any of the others. The dry state however is very unfavourable for finding them— I propose to give the curious statements of Raffail concerning their affairs, an experimental examination, and whether

I confirm a repute his statements The result will be interesting – Do you not think that a paper on this subject might be interesting to American botanists, since these curious organs exist in so many of our American plants?

I saw yesterday in the New York Review, a notice of the following work by Ehrenberg. "Die Infusiones Thierchen als volkommene Organismen &c mit Atlas von 64 colorirten Kupfern, in folio. Von C. G. Ehrenberg Leipzig 1838." If you can find this book in New York you would greatly oblige me by purchasing it at any price. If it is not in the city, can you not order it for me through our good friend Dr Gray? If you have heard from him, by the recent arrivals please let me know, for he possesses my warmest regard and esteem, and I feel a sincere interest in all concerning him. Whenever you write to him give my good wishes and kind remembrance, –

Do you know who wrote the notice in the N. Y. review above referred to. There is in the same review a [redacted] notice of a curious memoir of Turpin's in which the fermenting processes are said to be caused by the vegetation of microscopic plants – The experiments are said to have been tried with beer &c. Do you think that if pure diluted [redacted] sugar were mixed with yeast, that vegetation would necessarily ensue, before alcohol could be formed, or has Turpin considered circumstances which happen to occur together in beer &c, as necessarily related as cause and effect

when finally there may be no necessary connection between them? Experiment must decide

Since writing to you I have had several fine trials of the Carb. Acid apparatus, and have each time obtained large granules of the solid, even more than I needed for all the experiments I wished to show my class— It is really surprising to see how long this substance will remain in a solid state when freely exposed in a warm room. A piece as large as a hickory nut will not wholly disappear in eight or ten minutes

CORRESPONDENCE
HERBARIUM
HARVARD UNIVERSITY.

You must come up in the Spring to see these wonders.

I am much obliged to you for your offer concerning apparatus, and hope to get many nice things from you, We are greatly in want of a convenient galvanic app.s for decompositions, and I doubt not that we shall be able to make a bargain together for one of your construction, At this moment however I scarcely feel authorized to order one as the appropriations for this year have not been made. When I see you, we may come to some definite arrangement. Besides a battery, I would be very glad to get the other accessories which your experience has led you to invent— If you can furnish me with a list of them and their prices, and also a sketch of the proposed battery its no. of plates and its cost, I will try and get the Supt who is very liberal to authorize their purchase—. Can you find in any of your books a drawing of any species of the genus Cymbella (Ag.) among Algae? I noticed several times last summer while examining Confervae, & Infusoria, a singular thing agreeing pretty well with the character of

Cymbella cymbiformis Ag. Its shape is this.  It is transparent, with greenish matter disposed in spots irregularly (as is the case in all Desmidieae that I have observed, although specific characters are often drawn from particular dispositions of these spots) — I have not determined whether the frustula are silicious but believe they are not. I have seen a similar body composed of numerous wedge shaped frustula diverging from a centrum joint something in this manner  . I draw from memory. These things are excessively minute not larger than Meridion circulare — The descriptions in Eng. Flora. Vol V. part 1 are too brief for me to feel quite sure as to these curious things.

Dr. John Torrey
corner of Prince & Mc Dougal Sts
New York

I enclose a bit of an aquatic from Knowkites pond — Is it not a Ceratophyllum. We begin on Monday the drudgery of the Examination, and until it is over I shall have little leisure. When will you favour us with another part of the Flora?

Give my sincere good wishes, which are not the mere compliments of the season, to your family and believe me most truly Your and your sincere friend

J. W. Bailey

HERBARIUM
UNIVERSITY

42

West Point July 8 Saturday 1854

My Dear Friend

I hardly know how to answer you concerning the trip to Catskill I want to go exceedingly, and nothing would delight me more than your company but I am afraid that we cannot arrange our plans so as to go there together

I have company staying here now, and am not sure when they will leave, Mrs Bailey is desirous of taking a trip to Sharon Springs (to stay a week) as soon as our house is empty, so that it is difficult for me to state positively whether I can join you in the Catskill trip or not, but to preserve every chance in my power for so pleasant an excursion with you, I write now that in case you determine to go to the Catskills you may stop here on the way and then we can determine positively with regard to our plans. - "If we start for Sharon before you set here, I will send you word to Princeton

I am glad to hear that Mrs D. Elvia and Dr Gray are taking so pleasant a jaunt, It will benefit them all. I hope we may see them on their way back.

I have taken one look at a scale of the Saliconnia, the vessels are indeed remarkable for their size, number and for being remarkably compound - I see nothing however that you cannot easily make out with your lower powers - The fragment you sent has got out of my sight some how, and I have therefore not given it as thorough an examination as I would wish, Please bring another bit with you when you come.

I have been so busy showing the lions for a week or two, that I have looked at nothing in the small scale, I long for a good set down with you

I close in haste as the post is waiting

Ever yours truly

J. W. Bailey

West Point. July. 22. 1843

HALE CORRESPONDENCE
COLUMBIA UNIVERSITY.

48

My dear Friend

I have just got back from Rockaway where I have been for three days with my two boys, and a nurse to get the benefit of sea bathing sea air &c, and we have now returned decidedly benefited by the trip.

I shall not be able to visit you as intended, or at least not so soon, as I shall start for Maine on a visit to my mother, in a few days, I shall take my little daughter with me and be gone two or three weeks, If I get back in time I may treat myself to a visit to you in the latter part of August

I found no work among the Algae at Rockaway as the shore is a very beaten beach and entirely free from vegetation - I found some curious marine infusoria and have got them alive at home now. In botany I did nothing as the plants were all burned up by the excessive drought.

I hope to spend a week in Boston and shall try and see Dr Gray if he is at Cambridge -

When shall we see you here - Mrs B, will be very glad to see any of your family during my absence, so you need not wait for my return, if you want to make a trip with any of them -

I am sorry I shall miss the pleasure of that excursion to the Pines, I trust however we shall be able to arrange a trip together somewhere next year, if not sooner -

I write this in haste, to let you know my whereabouts -

Very sincerely
Your friend
J. W. Bailey

Give our kind regards to Prof. Henry and family

HALE CORRESPONDENCE
COLUMBIA UNIVERSITY.

Recd June 6th

West Point June 5th. 1858

Dear Sir

I would have sooner acknowledged the receipt of your truly acceptable and valuable present if I had not waited in hopes to have some good opportunity to send to you a small package - I will send it down to Chilltons either by Capt Favrots sloop or by the Highlander, Please then, send to Chiltons for it Tuesday or Wednesday as I may put with it some things which will not bear keeping — I would gladly pay some attention to our marine Algae, and feel grateful to you for your offer of books and specimens, - I shall certainly not neglect any opportunities that may occur for me to attend to this branch of our delightful science, but I cannot afford to pay visit, to the sea shore for this purpose alone.

I expect to pass the summer at West Point, and it has occurred to me that I might contribute a small mite to the advance of botany, if I could determine and figure the various species of the tribe Diatomaceae which appear to be very abundant about West Point. I have found D. flocculosum, crystallinum, and at least two other species — also one or two Fragillarias, a Frustulia, and in "the orbicular object" I sent you recently, the specimens you sent me enabled me to recognize the Meridion of Agardh - Our specimens agree precisely with the specimen of Meridion marked M. vernale which you sent me, except that in the latter the circles are never complete - Agardh's description however does not agree

with these specimens, and as there is a Meridion circulare of Ag.h credited to the English flora by Hooker I think from the name that it must be our species— It appears then that about West Point alone, we have seven or eight species of this curious and beautiful tribe and but one has ever been taken account of.— Can you lend me any books containing plates or detailed descriptions of this tribe?— I would like much to see Greville's Algae Britannica— or Fl. Edin. or indeed any work which you think likely to assist me in these observations.

I am happy to inform you that the specimen of fossil infusoria which you kindly gave me, has led me to the discovery of a large deposit of similar siliceous shells in a fossil state in the peat bog (or swampy meadow) just south of Fort Putnam— It was here that I first procured the Conferva among which as I found these creatures, — From their great abundance in the living state, I felt confident that their shells must exist in great quantities in the earthy matter below, but I was hardly prepared to find the lower stratum of the bog principally composed of a white or grey clay like substance every speck of which contains numerous shells of these strange beings— I can send you enough to supply the world if necessary— I send you in the package several large pieces which please distribute among your friends who have powerful microscopes— If you could get a piece sent to Ehrenberg I would be glad. I have written to Silliman to ask him if he will authorize me to have printed here at his expense some drawings of these infusoria for his Journal— It is now two weeks since I wrote to him and I have not yet heard a word in reply— You may therefore if you please announce this discovery to the Lyceum— The principal forms which compose the mass sent you are figured roughly and hastily on the next page— These drawings I make merely to indicate the particular forms I have noticed most abundantly and they are not intended as at all accurate

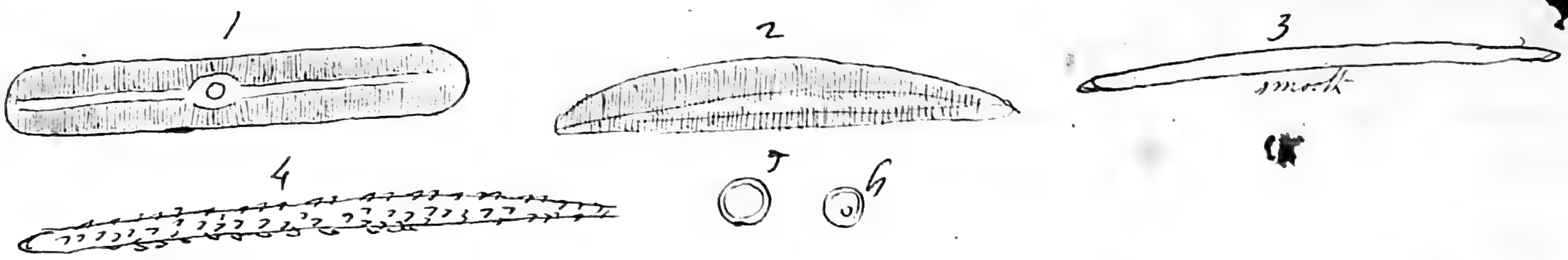


Fig 1. & 2 By observing them while rolling over and over in a current of water they are found not to be cylindrical but very much flattened -

Fig 3 a smooth siliceous body (without markings?)

" 4 a siliceous body with numerous asperities

" 5 & 6 annuli and discs, very abundant in the same mass as the preceding.

I recently found on the brow of Nut a very beautiful specimen of Orchis spectabilis having one monstrous flower in which the normal structure of Orchideae was admirably shown. Three perfect and operate anthers were developed, each agreeing perfectly with that part of the anther usually developed which lies above the stigma, The stigma was much more dilated than usual but was evidently single, The ovarium and indeed all parts of the flower except the stamens were in their ordinary state as was the case in C. calfolia recorded by Richard.
I made a drawing of it and have preserved the specimen - I shall perhaps stick the drawing in with some other things for Silliman -

I have this spring examined all the large ferns I could procure, to see if there are any true spiral vessels in them - I have examined Pteris - Onoclea - Botrichium virginicum & munda regalis & cinnamomea - Adiantum - Aspidium marginale and other species, - Asplenium and some others and in every one without difficulty, I have uncoiled spirally, not spiral vessels but ducts having precisely the character I described to you last winter - I send for yourself and Dr Gray some that I have prepared expressly for you - I wish Lindley's "friend Mr Griffith" could see them - I think he would use a higher magnifier the next time - While I have failed entirely in detecting true spiral vessels in ferns I uncoiled several times from Equisetum sylvaticum what have all the appearance of being simple spiral vessels, I have however not yet detected them in E. hyemale nor in E. palustre - Neither have I yet uncoiled the ducts of Lycopodium lucidulum I have not tried a young specimen - I shall put in the package a few more leaves from which please select the best ones for yourself and Dr Gray and dispose of the

others among your friends, warning them however that they are useless without the Rapail fixtures or some other equally good arrangement of mirror, motions &c—

Can you or Dr. Gray find time to copy for me about 10 or 15 lines from that part of the Report on Botany in Lond. & Edin. Phil. Journ. which contains the account of the discovery by an Italian of the fact that the Diatomaceæ are siliceous— I may want to quote it. ~~I send you~~

P.S. I send you the bundle containing the names of Infusoria — Genera — Spiral Ducts, &c by Capt Fauvet who will leave it at Chiltons — You will find the Plates of the Marchantia a pretty microscopic ~~object~~ object —

I have a fine son about a fortnight old —

With great respect

Yrs truly J. W. Bailey

Our annual exam^n commences to-day with the reviews &c.

TORREY CORRESPONDENCE
HERBARIUM

Dr. John Torrey
corner of Prince & Mc Dougall sts
New York

West Point. June 28th 1843

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

My Dear Friend

If the documentary evidence were not before me now, I could scarcely believe that I had allowed one of your letters to remain unanswered ever since the last of February - Yet so it is, and I ~~dare~~ have the presumption to suppose you will forgive me for so doing. I know that you would hate to receive from me mere letters ~~from~~ of ceremony, and I have therefore always written to you when I found it convenient to do so, and not till then.

I cannot recollect a year when I have been so pressed with various business as I have this spring - It required every moment I could spare to get my notes on Crystals into shape, for the Albany meeting, and since then the approach and progress of the Examination drove me irresistably along in a train of labour from which there was no escape - After more than 3 weeks sessions (from 8 to 3 o'clock daily) we have at last got through, and I have at last some leisure again - I am a good deal worn out by the Examination, and need to travel to recruit - I think of going to Maine to visit my mother, and shall probably take 3 of the children and our nurse, leaving Mrs B and the rest of the species of the Genus Bailey at home, I shall be gone several weeks - It is also my intention to visit you for a day or two some time this summer, and if we could plan an excursion to the Pines, or some other pleasant one, I should like it much - Do let me know when it would suit you to have me come I will bring my microscope, and also your Algae which I finished arranging some months since, and would have returned long ago, if I had not waited for some opportunity to get them to you without expense

I have scarcely looked through my microscope for a month, except to study some points in the anatomy of those most curious creatures the locusts, with

which the words around are now alive, although the fading leaves and falling twigs show that death is to ensue.

I have not found time to make drawings for you of the spiral vessels in the seeds of Ruellia, but as they have been described already, I presume the omission to send you figures will be no disappointment_ There was a paper communicated to the Linnaean Society by Prof Don from Mr Richard Kippist "On the Existence of Spiral Cells in the seeds of Acanthaceæ", describing particularly the curious clusters of these cells on the seed of Acanthodium spicatum from Egypt, Two species of Blepharis are mentioned as possessing a structure similar to Acanthodium Ruellia formosa is mentioned as having the testa covered with short thick tapering tubes within which in some cases a single spiral fibre is loosely coiled, whilst in others only distant rings occur,

"In Ruellia littoralis, Phaloposis glutinosa and Barleria noctiflora the tubes are without spiral fibre, but discharge streams of mucilage from minute terminal pores

The seeds of many Acanthaceae are destitute of any spiral cells or other hygroscopic properties, such for example as Acanthus mollis and sacrifolius, Dipteracanthus erectus several species of Justicia and Eranthemum"_

I remember to have looked at the curious hairs of Ruellia strepens, a season two ago when in Virginia but I have preserved no sketches.

We had a very pleasant meeting in Albany, and I only regretted that you were not there, I am afraid some unpleasant misunderstanding must have prevented your attending the early meetings _ I know that many members would be rejoiced to have you join us_ I think a very great mistake was made in electing Johnny Leconte as President of the next meeting, but I had the satisfaction of being the only one who voted against him.

When I come on to Princeton, I would like to bring my little boy Sam who is now sick with an intermittent fever, and influenza, and I know that

Mrs Torrey ~~Abbott~~ girls will take care of him for me for a few days, I think the trip will do him much good, when he is able to travel.

I want you to keep a look out for specimens of Monocotyledonous plants for me to examine in search of crystals, as I am going to work on them next, and want to examine as many natural families as possible — When I go in to Maine I hope to spend a week in Boston and shall of course see Gray - and ~~if~~ course too, I shall pick up much more interesting information from him.

Give Mrs Bailey's kindest regards to all your family and to Prof Henry, to which add my own - Remember me kindly to Prof Alexander and lady and believe me with sincerest friendship,

Yr truly J. W. Bailey

TORREY BOTANICAL CLUB
HERBARIUM
COLUMBIA COLLEGE

P. S. I consider it so much as a matter of course, that you know well, Mrs B. and will always be delighted to see you and any of your family, that I have omitted for the body of this letter to renew our frequent invitations. We are now nicely fixed with servants - Mrs Bailey is well, and can receive you with great pleasure -

Dr. John Forrey
Princeton
New Jersey

without ✓
the ✓

single

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331

ans? April, 6th.

LIBRARY
NEW YORK
BOTANICAL
GARDEN.

West Point. March 28 1831

My dear Friend

I anticipated the pleasure of seeing you, on my way to Philadelphia and thought that even if you could not go there with me, you could at least advise me how to dispose of my time to most advantage and tell me what was most worth seeing, I find however that the time I am allowed (hem!) to be absent is so short, that I must proceed directly to Philadelphia without stopping in New York, and I write this hasty note to let you know where I shall stop in Philadelphia, so, that in case you or Dr Gray are there next week we may not miss each other, I shall stop at Jones' Hotel opposite the Arcade in Chesnut St.

If I do not see you in Philadelphia I shall call on my way back.

I have but 7 days leave of absence, and besides attending the meeting, I would like to visit either the Coral District of Penn.a or the Marls of New Jersey. I must therefore economise time as much as possible.

I like your plan for a valve for Carbonic Acid very much, It appears easier of construction than Mitchills.

I have lately made a good many little articles of copper for laboratory use by an application of the Electrotype process, which is so simple that I suppose it must have occurred to any one who has experimented at all. It consists simply in making a solid model of fusible alloy of any hollow article such as retorts Receivers, tubes, jets, syphons, blowpipes &c &c. and precipitating the copper upon it by galvanism, when the copper is thick enough, melt the fusible alloy and pour it out at a hole left for the purpose — and clean the inside with a little nitric acid.

The applications of this, are very numerous and must be useful to the student or chemist who has to contrive and make his own apparatus. I had some notion of publishing a little note on the subject, but I find that a gentleman in Philadelphia exhibited at a late meeting of the Am. Phil. Soc. a vase made by this process, I suppose therefore

From the D. Crosby Collection
Given by A. M. VAIL.

that the process is now generally known

I noticed this spring a fact with regard to Lemna minor which if not already known may be worth recording — I kept in a tumbler of water the specimens of Lemna which you found in flower on Staten I. As winter approached the seeds sunk, many of the fronds died and became white and colourless, but a portion of the fronds sunk to the bottom where they remained all winter in a torpid state, and acquired a dark purplish colour which appears under the microscope to be due to clouding matter lodged in distinct cells scattered through the frond, the most interesting circumstance however was this — The fronds after remaining torpid all winter have revived this spring — have risen to the surface and each has shot forth from its side a new frond, ~~—~~ It appears then that this plant may be continued from year to year without the agency of seed.

The seeds are also germinating, and rise to the surface almost as soon as they begin to sprout — They in all cases but one have protruded a frond, and the radicles do not yet appear — In one case I saw a long radicle and no frond.

I shall study all this more carefully on my return from Philadelphia — I thought however the above fact with regard to the hybernation of the fronds might interest you

— I noticed also this winter a curious fact with regard to Nitella, which seems almost to show that each joint of that plant is a ~~single~~ distinct individual — I picked last Autumn a small piece to examine the circulation, and threw into a tumbler with some sediment from a pond, here it remained unnoticed until this spring when I again observed it, and found that although without any roots or fastening of any kind it was in a thriving state, but what was most remarkable, I found that several ~~separate~~ single joints, had separated from the original plant, and in each the circulation was as distinct and rapid as in the original — I kept some of these single joints

several weeks and frequently observed the circulation, the joints were about an inch long and appeared thus



This reduction of Chara (Nitella) to a single cell is something that I have not seen noticed in any book.

My best respects to Mrs Torrey Dr. Gray and any young friends not forgetting Herbie — Hoping that we may meet in Phila.

I remain ever sincerely,
Yr Friend
J. W. Bailey

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10.

Dr John Torrey

corner of Prince & Mc Dougal St

New York

And may Yours

Wednesday. May 2 1839

My dear friend

I am happy to state that our affairs are so well in progress as to enable Mrs B. to authorize my saying that we shall be ready to receive you and your on Wednesday, if it suit your convenience. We have had a longer siege than we anticipated owing to the vexatious delays which always attend any thing that Quartermasters have any control over, but being once well through, we hope we shall now be able to receive you in comfort. You may be sure at any rate of a hearty welcome which is the main point.

We shall be all ready to receive you on Wednesday, but wish you however to choose the time most convenient to yourselves.

With best respects to Mrs Torrey and love to the children

I am yours as ever

J. W. Baily

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

The Point is now in the full perfection of its Spring beauties, and if pure air and pleasant prospects will benefit Mrs T. an excursion here at this time will be certainly beneficial

Rec'd May 5th

West Point. May 13th. 1837

CORNELL UNIVERSITY
LIBRARY

Dear Dr.

I received your note and package for which I am much obliged. We are now exceedingly busy preparing for a wedding which is to take place at my house on Monday the 15th. My sister in law Miss Slaughter is to be married to Lieut. Burbank. I would be very happy to see you at the wedding and can accomodate you if a cot and mattress will answer your purpose. My house will be full of company from Virginia so this is the best I can do for you. I would be very much pleased if after the crowd has left my house (which will probably be in about a fortnight) you and your lady would pay us a visit, but that you may not be disappointed I deem it proper to inform you how full my house will be for the coming 10 or 12 days.

I have been so busy with our short course of lectures on Geology for the Cadets; with preparations, for the Examination; and also the coming nuptials that I have had scarcely time to look for a plant, I found Salety a small Marchantia (hemisphærica I believe), in flower, and was much interested by examining it with a microscope. I have tried to see pollen tubes in several plants but our microscopes will not catch them. Do you know what such microscopes as Coda, Mirbel and Brown used would cost? Our Orchis spectabilis and many other fine plants will be ready to welcome you when you come, and I anticipate much pleasure from our rambles together in this wild region.

I am much interested in Dr Grays pamphlet, but wish he had accompanied it by plates. I have however the Encyclopedie Methodique in which some of the plants are figured though not with minute details.

Give my respects to Mrs Torrey

and believe me with much respect

Ys sincere friend

J. W. Bailey

P.S. If you can come up any time coming this week I can give you a cot and mattress conveniently and with much pleasure.

TORREY CORRESPONDENCE
HERBARIUM

Wed. May 27th

West Point. May 26th. 1841

Dear Mrs Torrey

Will you be so kind as to send the band box with the dresses by the Highlander on Thursday evening.

I have been sick ever since I came from New York, and have not half overhauled the old letters

My love to the girls.

Yr friend
Maria Bailey

Dear Doctor

I have scribbled the above lines in great haste in the name of Mrs B. and must now in my own capacity address a few lines to you

I have glanced at some of the things you wished me to look at—

There can be no doubt that the woody matter about the stigma of Asteria is made up of pollen tubes— I examined the young flowers, and found the perfect pollen without any trace of the boyaux, and agreeing in all other respects with the round heads of the plaments, emphatically the woody matter.

The pollen tubes as far as I can judge are not branched, but sometime, appear so, from an entangling or adherence of several together.

In Tristerella capitata the same structure was very distinct, You will see by one of the drawings, sent with this that the pollen tubes hang in three masses from the three stigmatic points.

The other species of Tiarella I have not yet satisfactorily examined, most of its flowers appear too old — I will try it however again

The seeds of a "Labiate plant", when put in water evolved, from large cells covering the carpel, long filaments of mucous matter in or on which exceedingly fine lines, showing traces of a spiral arrangement were visible.

The Dicerantheræ showed nothing you cannot see with your glasses except very beautiful structure in the endothecium

The flower of an allied genus has got out of its paper and I cannot find it —

I hope the sketches sent will be intelligible — I hope to show these things with my glasses before long

Yrs in a hurry

but as ever

Yr sincere friend

J. W. Bailey

TORREY CORRESPONDENCE
REPRODUCTION
COLUMBIA UNIVERSITY

West Point. November 9th. 1839

CORRESPONDENCE
COLUMBIA UNIVERSITY

My dear friend

I got your package of minerals with a letter at Chiltons last Monday but was too busy to open it until I left town, and as I had no opportunity to send you the copy of Turner ~~until~~ during the week, I delayed writing until now, as my first chance to send to you will be by the Highlander on Monday - I send you my copy which you will see has been a little abused - I have ordered another for myself which will be here on Monday so that I am not put to any inconvenience - Is there any chance of getting the completion of the American edition? - We have to pay for the imperfect copies as if they were perfect.

The minerals sent by Bourne are very fine, and I have no doubt that the Academy "ie R.D." will take them - I have not yet spoken to him about them for want of an opportunity, but shall do so ~~to~~ Monday - In the mean time if Bourne's sister is in want of the money, I can get you to ask Chilton to charge the minerals to the U. S. as if purchased of him and to pay you the amount which I will include in my next requisition for Chemicals - Perhaps this would be the simplest way, if there is any hurry for the money, as the formalities to be gone through here may cause some delay - ~~I~~ am delighted to hear

~~to hear~~ of the safe arrival of our good friend Gray, and can well imagine the pleasure which his arrival has given to your family - I hope I may have the pleasure of seeing him myself soon, and indeed I would ~~have~~ come down myself on monday, if I did not ~~fear~~ fear that I might interupt him, when he is, of course, exceedingly busy. Tell him, that wherever he can come up here, he will be sure of a hearty welcome, My den will be at his service in the day time, and at night we can stow him away without any inconvenience If he comes up, which I trust he will soon, I hope he will bring up some of the smaller novelties from Europe to show me.

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

I get very little time this year for any thing but playing the schoolmaster, but whenever I can get an opportunity for a prowl I generally bring back some plunder

I found the other day in one of Kronbehyte ponds, a number of specimens of undoubted Xanthidia - so closly resembling those of flint that no doubt is left on my mind of their belonging to the same genus - To confirm this belief I also found one specimen of Perinidium  another "Bogenism" of the chalk flints - I am much puzzled at this occurrence of chalk organisms in fresh water - Can it be that some flints are from fluviatile deposits, or were their animals &c capable of living in fresh and salt water, amphiaqueous if I may coin so bad a word? I left for you at Chillton a specimen of the Xanthidium

with a slide of Closteria — I shall send you with the book on Monday some of the living Closteria — Please observe in them the motions of the minute particles at each end.



See also if they do not "locomote" — I have several times had them move out of the field of view when attempting to draw them by means of the camera lucida With this Closteria you will probably find some of the Rotifera vulgaris which will interest you much if you have not yet seen its beautiful wheel or guns

I send also the autumnal state of Batrach.m Americanum Schreinte — Its structure is very beautiful.

Mrs. B.'s general health is now good, but her situation is not materially changed — She is not allowed to leave her room — I hope she may soon recover. Winter is now upon us — my little girl called me this morning to see "the shadow of the rain" which proved to be a considerable sprinkling of snow — I must try to get down once more this fall, before we are ice-bound — but it is uncertain when I can come — Dont fail to send Dr. Gray up — we'll take good care of him —

Give my sincerest regard to him — my love to the children and believe me most truly your sincere friend J. W. Bailey

I send also a specimen of Gyrosigmoidium coccinaeum Locality — Cambridge road 4 miles from W.s

TORREY BOTANICAL CLUB
HERBARIUM
COLUMBIA UNIVERSITY.

Sillim.n Journ. Vol 9. p. 57

Dr. John Torrey

corner of Prince & McDougal Sts

New York

STEAM-POWER
NOV
10
N.Y.

West Point. Nov. 4 1841

My dear Friend

I send in much haste, a few specimens of a singular microscopic fungus (Craterium pyriforme) which I have just detected growing in great abundance at West Point. For my first knowledge of this curious affair I am indebted to Dr Gideon Mantell who sent me specimens adhering to flint pebbles from Clapham Common England. He remarks in a letter dated August 3d 1841. "I send you a pebble or two of flint with some of the living Craterium pyriforme that equisite microscopic fungus which is as white as snow, and upon being punctured gives out a bright scarlet fluid, I have had pebbles on my mantle piece for months and yet the vegetable was alive and bled as usual, I therefore hope that a voyage across the Atlantic will not destroy them and that you will be able to see the phenomenon which to those who have never seen it before is most striking. But probably you have the species in your county."

The letter accompanying the specimens was dated ~~August~~ Sept. 3. and the specimens arrived November 12th. and still bleed freely. Having examined the English specimens I was of course anxious to detect some of home manufacture, and I found them in abundance on the very first stone which I carefully examined. The specimens I send with this are from the hill just back of my house. I send also one English specimen

Yrs in great haste
but with much regard
J. W. Bailey

Dr J. Torrey
N. York

LIBRARY OF THE FOUNDATION
HERBARIUM
COLUMBIA UNIVERSITY

from J. W. Bailey

COLUMBIA COLLEGE
NEW YORK

Dr John Torrey

New York

care of Dr Chilton
263 Broadway N. Y.

Rec'd Oct 13th

West Point. October 3 1841

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

My dear Friend

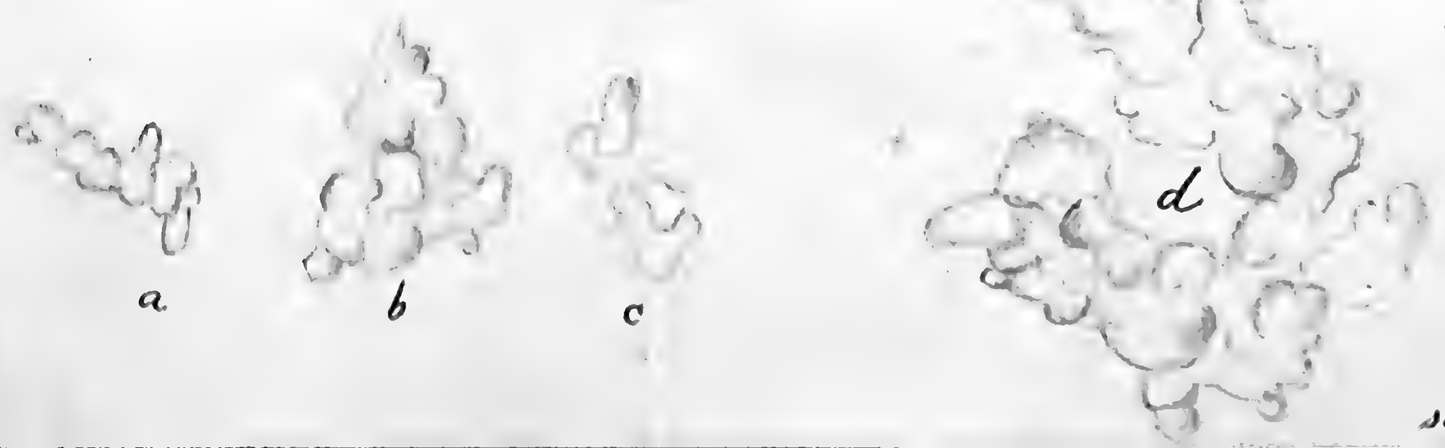
Excuse this fantastic paper, which accident alone compels me to use to day — I have delayed answering you for a few days in consequence of the press of business caused by Galvanic experiments &c. and also to afford time to put up a few small things for you — I received quite recently a package from Luckett containing some good things among them some silicified wood that rather beats the Fredericksburg pines. It shows two rows of glands on the ducts and is very transparent — He sent only microscopic fragments, of which I send you some. Luckett says that the bottles of water from our ponds which I sent him "contained many forms of animalcules never before seen by our British microscopists and their contents were eagerly sought after, and the Xanthidia Cruciata &c were alive although not opened for three months" He is anxious to get more, which I shall send him very soon.

He enclosed in his package a few pamphlets, of which I send you some, where there were duplicates — The paper on Ergot he wished to have given to some society — I shall send one to the Academy of Nat. Sc. Philadelphia, the other I send to you to dispose of as you think best — Luckett mentions, briefly, Talbots mode of preparing his Photographic or "Calotype" paper — It is washed with Nitrate of Silver, then with Iodide of Potassium then with Gallate of Silver — fixed with Hyposulphite of Soda — "The admission of light through the camera on it for a few seconds is capable of rendering the object perfectly distinct and it has the two fold claim to superiority viz, cheapness and permanency"

You will find the Isthmia obliquata, of which I send you a fragment — a very beautiful object — I think it the most beautiful of the siliceous Infusoria, — I send you also some yellow powders which young Silliman sent me for examination. That from Picton N. S. "fell on board a sloop and covered to a perceptible thickness all flat surfaces for miles about". He adds that Mr John H. Blake of Boston "informs us that under the microscope it is resolved into ova filled with a gelatinous fluid and exam? chemically gives every indication of animal origin viz burns with animal odor, leaving Phosph. Lime — dissolved Nitr Hyd chlor. acid gives Cyanic acid &c" You will perceive by a single glance with the microscope that these supposed ova are nothing but pollen grains of pine — The presence of phosph. lime and nitrogen in pollen is not no news. The Troy powder which is mentioned in Silliman's Journal Vol 39. p 398 as spores of Lycopodium is also composed of several kinds of pollen, though I can not identify the species. There are small triangular pollen grains like those of Onagrariaceæ, and larger ones which I can not make out but they cannot be spores of Lycopodium as that is not in fruit in May — also not unlike those of Myrica but smaller.

It probably the pollen of some common tree, Can you tell me what one?

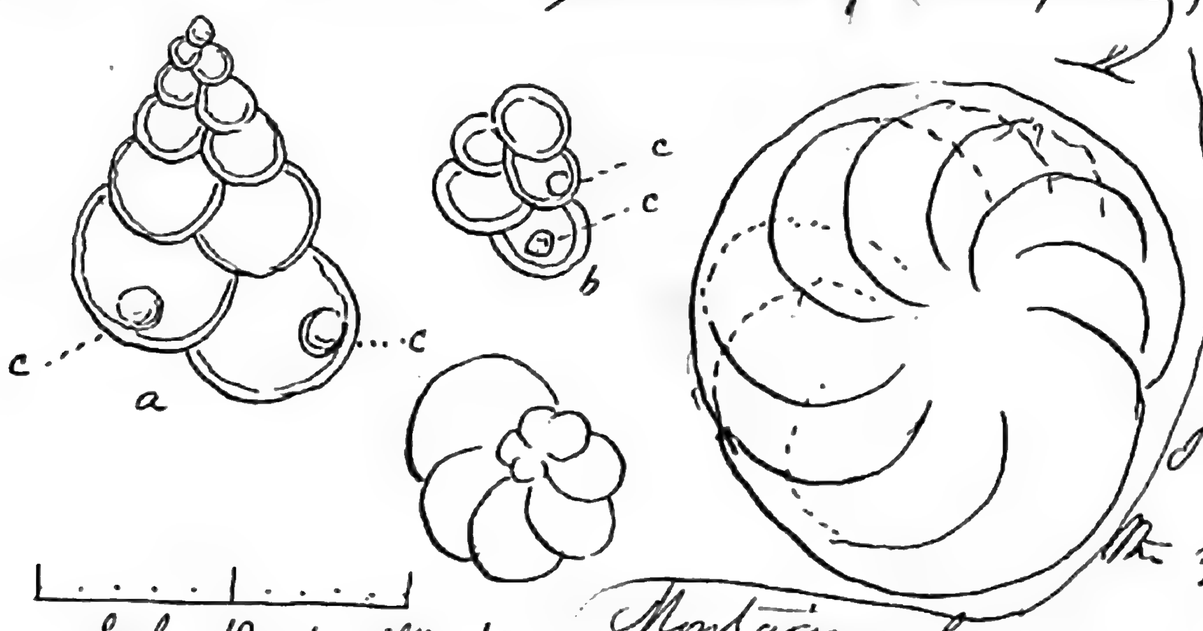
I was very glad to get hold of a piece of the celebrated "Tuckahoe" — Are you aware that there is a "Tuckahoe Creek" near Richmond Va — that there was once in that vicinity a tribe of Indians of that name — and that frequently even now, the people residing East of the Blue Ridge are called "Tuckahoes" those west of it being the "Cohees" — I have looked at this curious affair a little under the microscope but have not yet seen any thing worth publishing a figure of — It appears to me to be in too advanced a state for any traces of the fructification to be seen



The particles appeared when moistened as shown in figures a, b c, and when boiled about a minute in a drop of water over the Spirit lamp they appeared larger as in figure d. Minute traces of starch were also seen on applying tincture of

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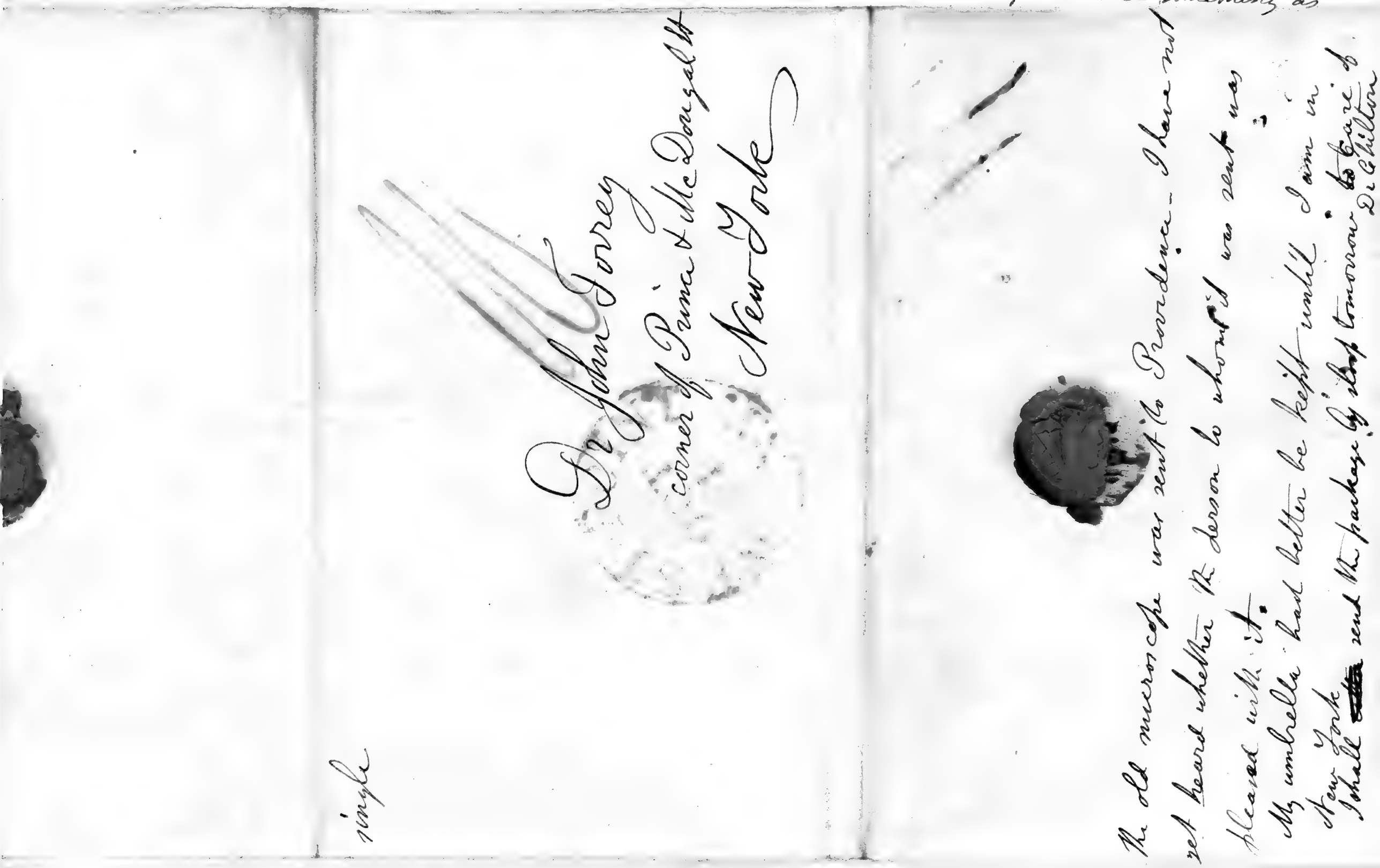
Iodine - Small branching entangled filaments were also seen, most numerous near the exterior.
The piece of "old Chelsea" showed nothing interesting, it is hard and perhaps is not a favorable specimen for examination - Mandells figure shows the Nummulite from the limestone of the pyramids but that genus is gigantic compared to some of the Polythalamia - I send you a small piece - enough however for a thousand examinations - of the "Prairie Limestone from —— Mission Station Upper Mississippi" - also a slide having a portion of the same placed in Canada Balsam you will observe Polythalamia & Rose forms, and some others. Figures a and b might



be mistaken for sections of univalves, but they really belong to the Genus Textularia of Dorbigny - In many of the forms small red particles c,c,c,c are visible - ova?
I wish you to oblige me by carefully comparing the specimens of Delesseria which I send, with Montagnes figure and description of Delesseria Leprieurii in Ann. des Sc. Nat 2 series Bot. tom 13 pl 5 - I feel pretty certain that Nor plant collected around Cayenne is identical with our species growing in the Hudson at West Point! Do see if I am right. - I wish very much to see the third volume of Meyens Physiologie - it contains an account of the manner & growth of Hydrodictyon - I have quite a crop of this queer thing growing. I wish I could send it in this state - I mean to introduce it, at any rate. — I did not forget your specimens of Xanthoxylum but the flowers were just dropping off when I went for them. I do not think that what I collected will be of any use, but I send them just as they are to show that I did the best I could for you - There were flowers on each specimen when picked but I fear they have all fallen off now. Of Orobanche I could get only a few specimens - I suspect I must give up the Cold Spring locality of Hippuris, I find that Asa Eaton mistook a variety of Chara for Hippuris and as at the time I found the plant in question, I was but a tyro in Botany and used Eatons Manual as my guide, I probably found his plant and called it as he did - I now have English specimens of Hippuris and believe them entirely distinct from the plant which I called Hippuris when I clerked about here as a Cadet.
I wish you to tell me the name of the aquatic plant which I found growing at the bottom of Kronkeytes ponds, in water from two to five feet deep - It is probably some common plant but not having seen it in flower I cannot tell what it is. Its delicate crisped leaves make it look like a mass of Ulva - You will find it among the plants I send - with a label to identify it - I found Gentiana quinqueflora growing near the same pond.
I send a small package of Algae which I wish Dr Gray to forward to Montagne

Y CORRESPONDENCE
HERBARIUM
MBIA UNIVERSITY.

I expect now very soon to receive some boxes of fossils &c which I collected and left behind in Virginia. They have just been shipped at Fredericksburg. When they come I can give you much better pieces of the fossil pine than I now have on hand — This pine is not a recent species silicified but belongs to a geological epoch anterior to the Eocene tertiary — Rogers thinks to the Oolite period. It is found deep in the sandstone quarries. One of the fragments I send you shows how soft and fragile some of the pieces are — And also shows that it was much contorted either before or after lapidification, whether by pressure or original growth is uncertain — Spiral striae are also visible on some of the tubes — something as



in Taxus. Torrey &c. You had better not send any to Brown until I get hold of my best specimens — I will make up a package then for Brown Durkett Lindley &c.

My family is still in Virginia, all well — I think it would be cruel to bring Mrs B. back here where she has suffered so much — at this season of the year — I shall let her decide whether to come now or early next spring — It is lonely enough here, it is true, but if she is well and happy where she is, she had better stay — Give my kindest regards to all your family and to Dr Gray

HERBARIUM

Yours very truly J. W. Bailey

West Point. New York.
October 11th. 1843

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

41

My dear friend

In spite of my frequent resolves and promises to do better I have again allowed a long interval to elapse without writing to you, but you have lost nothing thereby, as I had nothing of interest to communicate, and even now, I feel, as if, I should rather apologize for writing than for not writing as what I have to say is of such slight importance.

I have been expecting for sometime either to see you at my house, or to go myself to yours, but my prolonged visit to Maine used up all the vacation and you know when we once get back again into the harness it is hard to get out again, I was down in New York nearly all last week, and of course missed you and your family exceedingly, Among my pleasantest reminiscences are those connected with the visit. I used to make at the corner of Prince & McDougal that to spend a week in New York with nothing to do but to shop is bad business.

I had a very pleasant visit to Maine, and got some good specimens, though I met with no novelties, It is worth a journey to Maine to see the splendid Orchideae such as Habenaria grandiflora, orbiculata, Cypripedium spectabile &c in all their glory.

I spent several days at the house of Mr T. Allen at Gardiner, his wife is quite a savante, and has collections of minerals, plants &c. Among her plants I find a fine collection of Algae from the Adriatic, collected I believe by Thomasini also a large herbarium of plants from the vicinity of Trieste - She was very liberal in giving me duplicates. The herbarium included many grasses, which I presume the present owner does not prize much, It is possible I can get some of them for you if you want them.

I hope we may have the pleasure of a visit from you and some of your family this fall, I long to look in upon you and Prof. Henry at Princeton, but cannot promise myself the pleasure this year. Give our kindest regards to Prof. H. and lady, and to all your family- I suppose Miss Elvira, Jane, and Margaret are grown young ladies now, and master Harby is a big boy.

I regretted very much that I missed seeing our friend Gray, as I passed through Boston.

Bartlett has been dangerously ill, and so has the Superintendent, both are now convalescent, Prof. Bartlett still looks badly.

I had a visit lately from Dr Horton of Orange Co. and in company with him and Mather we visited some of the mineral localities of this vicinity, Horton seems to be a very worthy man and an enthusiastic mineralogist

When you commence your lectures I shall hope to see you and have a long talk, in the mean time I remain as ever

most truly your friend

J. W. Bailey

NORRIS COLLECTION
SMITHSONIAN
INSTITUTION

And. Valley West Point. September 14 1837

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Dear Doctor

I was just about writing to you when I had the pleasure of receiving your letter, and I am very happy to hear that you will pay us a visit so soon, I was much disappointed by not seeing you last spring as I expected, but hope to take the long promised ramble with you next week

Since I saw you I have been staying in Rhodes Island, and have been very much amused and interested in pursuing the study of Grasses and Cyperaceae Thanks to your valuable monograph The latter I find are much more easy to study than I had imagined, and I have found the Grasses also tolerably simple, though I feel the want of a work with regard to them in which the same detail is entered into as in your Cyperaceae Is Grays Gram. & Cyp. which I see occasionally quoted such a work?

I have several plants which I wish to show you among others a Scirpus which I cannot identify and which I found at Kronkite Pond in this vicinity If my inexperience in this subject has not led me astray it belongs to the same division as S. triquetor from which it appears to differ in having leaves a foot or more in length, a 3 cleft style, bristles which have the hispidness retrose and direct upon the same bristle; bristles equal in length to the seed with its accumination, and a smooth polished seed, You will probably recognise it at once, but I must own it bothers me considerably. I found a day or two ago near Gees Point, Limosella vulgaris in flower and Decodon virginica in fruit, The latter puzzled me at first

for its leaves were so much like a Sagittaria, that I had to look a good while at the spathe and examine the structure of the seed before I satisfied myself that it was one of the Aroideae.

I collected some minerals at the limestone quarries at Smithfield R. I. and as I am about forming a Cabinet for myself, I would like to exchange for some of the St Lawrence specimens, I would like also to procure a suite of them for the Cabinet of the Academy and as we have duplicates of some valuable foreign specimens perhaps we may trade to our mutual advantage.

Prof Bartlett and myself will be very much pleased to show to Prof Dunbeny every attention in our power, and we can easily manage so as to accompany you to the Groves next Sa. Pray get the Prof to bring as many of his instruments with him as he can conveniently, for such an exhibition will be a rare windfall to us — I was on the Grows Neck a few days since and found Diplotaxium, ~~Tuscaloosia~~ Brachyelytrum, and some other grasses. I envy you your ramble among the mountains of the wild region you have visited, I know nothing more exciting and invigorating both to mind and body than such excursions,

Give my regards to Dr Gray and tell I would give much to see him when he first lands in a tropical region, and gets hold of the trees bearing palms &c.

I have a book which he lent me and will return it by you.

Remember me to your family and believe me with sincere regard

Yr J. W. Bailey

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Dear Sir

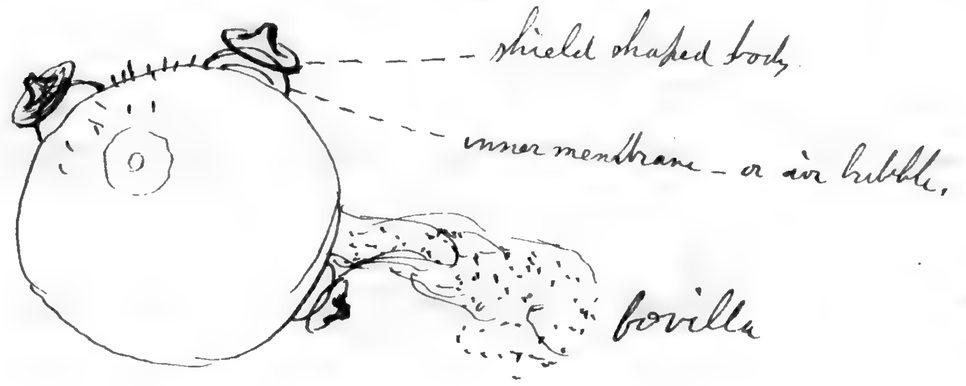
West Point Sept. 6th. 1838

I received on the evening of your departure, a package from you containing Lehmans pamphlet, a circular, and a note dated August 1st. Please accept my thanks for this kindly remembering me — Had I sooner have received your circular I would before this have sent you my order for the Flora. Please send to me as soon as convenient two copies, I wish one for myself and the other for any step father Prof.r Keely of Waterville Maine, I will settle for them when I see you. I think you had better send one of your circulars to the Providence Franklin Society, to the College at Waterville Maine, & to Dr. Usher Parsons, Providence R.I. — I will endeavour to cause a copy to be purchased for our library here, and in case I succeed you must look out that you are paid for it. — I cannot doubt that you will be rewarded as well by profit as honour for your valuable work. It appears to me that such a work is in the present state of science absolutely indispensable to all botanists except the followers of Eaton and the "andrias"; I myself feel vexed and nervous at the very sight of any remnants of Linnaen system.

I have not had much time lately for botanical studies, but have merely had a chance to get some good views of pollen tubes, I have

found them as Bronguiart did, in Datura Stramonium, Cenothera &c, and in addition I have seen them distinctly in Portulacca, in Argemone Mexicana, and in the flower of the Tomato.

I noticed a curious structure in the pollen of the common Sunflower — when moistened it opens at different parts and at each opening a shield shaped body is forced up either by a protrusion of an inner membrane or by a bubble of air, I think the former — The appearance I allude to is something like this.



I hope next season to do something in the way of gardening, and wish to ornament my borders with plants which shall not be common and vulgar, If you have any rare plants in fruit this autumn will you save me some seeds?—

You kindly offered to send me some of your Algae, when you have leisure to select them I would be glad to have you do so, as I feel much interested in the subject although I only know enough of the subject to be aware how great is my ignorance. I shall probably be in New York before long and will call — The copies of the Flora as far as published you may leave at Chiltons directed to me. My best respects to Mrs Torrey, to Dr Gray - and the children

Yrs with much regard

J. W. Bailey

Rec. 19th Sept

West Point Sept 17th. 1842

HERBARIUM COLUMBIA UNIVERSITY

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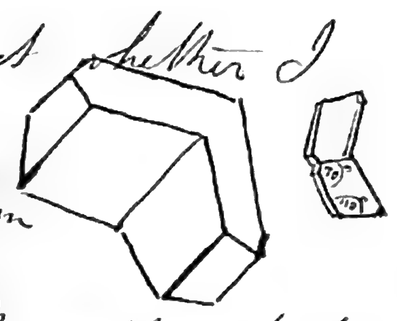
My dear Friend

The exceeding kindness of you and Prof Henry excites my warmest gratitude, and although it is now too late to take any steps with regard to the appointment in Virginia, I shall always remember with heartfelt pleasure, the spontaneous offer of assistance from you and Henry. Such acts as these show one who are his true friends. Before receiving your letter I had heard from two sources worthy of credit, that the election was to take place on the 19th inst, consequently when I got your letter on the morning of the 16th, there were but 3 days left to act in, of course it would have been worse than useless to attempt to do any thing.

I had indeed previously made up my mind that Bache or Rogers would succeed, and having also heard that none but [redacted] M. D would be appointed, I had given up all thoughts of applying, for I did not relish the idea of rejection. I felt also very doubtful about the propriety of going to the U. of Va even if I could have got the appointment. I felt that lecturing to large classes would be new business to me, and that if I should fail to render myself popular, I might be ruined. There being also so little prospect of success, I had previously to the reception of your letter given up all thoughts of the subject. Yet your letter unsettled me again, and had it not been too late, I believe I should have been tempted to let you and Henry "go it as strong" as you pleased in my behalf, and even now, should

I fear that there is any mistake about the date of the election, I am not unwilling to become a Candidate. But I suppose it will be all settled ere this reaches you, and it will not be worth while to bother ourselves any more about the affair.

I have been so much of a nurse lately, in consequence of the long continued illness of Mrs Bailey, that I have had no time for scientific observations. I hope to go to work again this winter and think I shall continue a course of experiments in the micro-chemical examination of crystals in plants. I have already a number of facts which I believe quite new and interesting. I forgot whether I have mentioned to you the occurrence and predominance of macled crystals of this form



in bark of
in all the Pomeae and Amygdalae which I have yet examined, they appear to be like the single crystals in bark of Hickory, composed of Oxalate of Lime, the number of crystals in bark of Chestnut and locust is enormous, but they are exceedingly minute

In the leaves of many plants one or more rows of fine crystals accompany the spiral vessels or rather the vascular bundles in all their ramifications through the leaves and may be seen beautifully when the burnt leaf is carefully fixed in Canada Balsam. I am sure that this is a rich field for research, but it will require a deal of time. As for the Algae, what shall I do? I consider all my observations on these as your property. I can either send you a list of such as I have determined, with occasional remarks, & I can get Silliman to publish it. It is time that a beginning was made in this department of American botany. How shall I return your valuable collection of Algae. If you wished I could rearrange the whole according to the manner adopted by Harvey

in his recent work on British Algae, I have been afraid however to meddle with your genera papers, although several of them include plants now referred to different groups— Let me know whether I shall return them as they are or without altering the old labels, write in pencil the new names, and put them under their new genera. I have 4 Nos of the Linnea belonging to you, and will return them by first opportunity

...TY OF MICHIGAN ...NIVERSITY.

I lately received a small package from N. B. Ward of London with a kind note inviting me to send papers and specimens to the Microscopical Soc. of London he also send me a copy of his work on the growth of plants in Glazed cases and several copies of the 1st and 2d Reports of the Mic. Soc— I believe I sent you a copy of the 2d Report— I have one of the 1st at your service if I have not got one—

What a grand time you and my friend Henry must have together, two such congenial spirits must add much to each others happiness, and the sympathy ~~of~~ advice and suggestions to one another must be of mutual benefit. Nice you making a Botanist of him— I hope he still continues to attend to Geology— He had made good progress when I last saw him— I should think he would be somewhat taken with the undulatory theory started by the Rogers to account for our parallel Appalachian and Alleghany ranges. The amount of it I believe is this. They suppose a line of igneous action— outbreak of volcanic gases, and a starting line for earthquake waves to have existed from Canada to Alabama either at, or a little East of the great primary range— The earthquake waves propagated along this line have thrown up the earths crust into parallel waves, which as in all imperfectly elastic media die off as the distance from the starting point increases These waves connected with a "vis a tergo" have produced first the inverted dips along the E. margin of the Appalachian Valley, then the sharp waves W of the Shawangunk and finally

broad undulations of the far West Thus



What ever may be thought of this theory, it serves well to connect in the memory the leading facts with regard to the position of the rocks of a vast extent of our country. A mathematical investigation of the effect of successive earthquake waves, connected forcibly with cross waves would throw much light on this subject — Just think of the possibility of the earth

RECEIVED
LIBRARY OF CONGRESS

Dr. John Torrey
Princeton
New Jersey

SEP 17

crust having undulated under the influence of laws similar to those governing the subtle medium of light! Mrs Bailey sends her kindest regard to you all, including Prof Henry and family — She would be delighted to see any of your here this fall and it is not long since we met, that I trust we may see each other before long — What a disappointment I met with last spring, when on calling at your old quarters and expecting your usual kind welcome, I found the house stripped of all its furniture and no familiar face to greet me — I have not a specimen of Udora to look at the remarkable structure you describe — Can there be an interior set of Carpels

Acad. Nat. Sci. Phila. West Point. Sept 23 1844

My dear Friend

SMITHSONIAN CORRESPONDENCE
RECEIVED
COLUMBIAN COLLEGE D.C.

Both your letter and package have come safely to hand, and I have examined the Guano and the Fossil Wood with much interest. I find, as I anticipated, that the siliceous infusoria have resisted the gastric juices of the birds and that they may be found in considerable numbers in the Guano. By dissolving what I could of the guano in dilute acids, the insoluble residue was diffused in Canada balsam and on examination by the microscope presented a considerable quantity of brown flaky bottoms among which were scattered Coscinodiscus lineatus, C. concavus, C. gigas, Gallionella sulcata, Spongiolithes &c either whole or in fragments. The number however was less than I expected, and as yet I have detected no novel forms. It is possible that other specimens of Guano may be still richer than the one I have examined. As the birds probably feed among the aquatic algae &c to which the Infusoria are always attached it must happen that in favorable situations they must swallow large quantities of the Bacillaria, so that some of the Guano mines may also be rich in Infusoria.

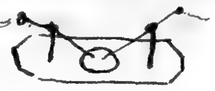
The fossil wood from New Jersey shows very distinctly the characteristic markings of Coniferae, I have not yet detected any very unusual character in addition but will give it a little further study.

In answer to your questions concerning the apparatus accompanying Chevaliers Microscope I have to state as follows

"La table mobile" is needed and is worth the money, It is the glass stage which you have seen with my instrument

"Le prism redresseur", I have one, but find no use for it

"Le compresseur" is indispensable

"L'appareil electrique" is  like Henley's discharger on a small scale for electric or galvanic action to be watched by microscope — I have never used mine.

"L'objective variable" I have never seen this, or else I dont know what it is.

I see that the Polarising apparatus is not mentioned, but I would by all means order one, It is true that you do not need it much in microscopic research still the phenomena it displays are so beautiful, that you will never regret having ordered it. Even in vegetable physiology, the beautiful action of starch on Polarised light, and the splendid mosaics of crystals seen in the liber of many trees make the Polariscope a very interesting instrument of research

I have just been trying some hasty experiments upon a subject concerning which I had some talk with you, I mean the curious action of water, after it is in contact with very hot surfaces, You will remember that I doubted whether the fact that the drops of these liquids did not touch the heated surface was enough to explain their not boiling. I could not believe that a drop of ether in a platinum spoon surrounded by flame was not receiving far more heat than it does when boiling under ordinary circumstances - That it does receive large quantities of heat from the metal is shown by the change of colour of the latter, As soon as the drop is introduced into a cup which was red hot it visibly cools and continues of a much duller hue although still kept in the flame. To prevent the escape of heat by the vapour which slowly forms, I covered the spoon up with a glass plate which when water was heated in the spoon became slightly dimmed, and was not raised up by the escape of steam, until on removing it from the flame it had cooled down so as to form steam explosively when of course it blew off the glass.

I next heated a glass tube at the bottom and several inches of its length and succeeded in dropping into it a portion of ether, and then while it was dancing about at the bottom of the tube I kept it enveloped in the flame of a spirit lamp and closed its orifice tightly with my finger, I felt but little pressure against my finger until I allowed the tube to cool and the ether to boil. Can you doubt that in this experiment the ether was receiving far more heat than was necessary for the rapid formation of vapour? - If Perkins's experiments with his high pressure boilers where steam would not issue from orifices 1/4 of an inch in diameter, are correctly reported, they also show that water at very high temperature has but little tendency to form steam, and I think he

states that there is a temperature which gives a maximum of elasticity to steam. I am inclined to think the elasticity of steam and the tendency to form vapour may be a function both of the sensible and latent heat and as the sum of these is said to be constant, there will be a maximum state of the function depending upon the relative effect which each may have in producing the elasticity of steam. If the sum, latent + sensible heat is 1212° of Fahrenheit as is usually stated then at the temperature of 212°F the latent heat must be 0°F.

The temp. 212° is not much above visible redness (just about the temp. at which water acts so strangely) and as at that temp. steam has so little latent heat as only to be capable of raising a Thermometer to 0°F. may not this deficiency of latent heat be the real cause of the want of elastic force in the steam as it joins in the hot metal reservoirs?

Quere. Will liquids still more volatile than ether act in the same way. ?

" How would the liquified gases act if suddenly placed in contact with a hot surface?

I know the above ideas are very crude, but I feel very confident that there is more in the phenomena than is explicable in the usual way, by referring to want of contact with the heated surface.

I sincerely hope that Mrs Torrey health is restored, Would not a trip here in the delightful month of October be beneficial? I trust she needs no new assurances of a hearty welcome - Mrs Bailey sends her love to her and the girls, She wants to know if Jane got her "hoe-cake" If, not she must compose some new words to the favourite corn song of the Virginia negroes. which runs something in this way

" The snake he baked a hoe cake

" And set the Frog to mind it

" The Frog he fell asleep

" And the Lizard came and stole it "

Chorus. " Bring back my hoe cake you long tailed lizard

As your season in New York is coming on I shall have a chance to see you there soon in the mean time I am as ever

Yours truly J. M. Bailey

SMITHSONIAN CORRESPONDENCE
HENRY LIBRARIUM
COLUMBIA UNIVERSITY.

Dr John Torrey

Princeton

New Jersey



Dr J. Torrey

New York

COLUMBIA UNIVERSITY.

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Hart. Dnt. April 5. 1848

My dear Friend

I presume that long ere this reaches you, poor old Alice will be no more, I have as you requested inquired if she had any relations in this country and I am informed that she has none whatever, and that she had no intercourse with her husbands relations. The few articles of property which she may have had with her at Princeton had better be sold, to defray in part the expenses of her funeral &c. When she left here, she told Mrs Bailey that she had left a bed worth $15 or $20 with some one at Buttermilk Falls, the person with whom it was left, or in whose hands it now is now claims that Alice sold it to her for $6.- Please let us know if the

whenever any wishes which we can execute.
She would have been a valuable woman
but for the unfortunate connection which
she formed.

I expect to go to New York to-morrow
" errant-hunting—! Don't you envy me
my task?

What is the reason you keep Jenny
and the other girls away from us,
Are you afraid "they will take on"?
With regard to that I can say nothing,
but if you keep them away on that
troubling us, you are greatly mistaken
in so doing.

I write in great haste as I am packing
up for the city,

Yours truly as ever
J. M. Bailey

P.S. Enclosed I send you a bit of "bloody bread" from Berlin just received from Ehrenberg - He calls it "the remarkable Moneas prodigiosa which forms Blood spots on Bread and fruit of all kinds and also upon "the Host" " He says that if a bit of the red matter is put on moist white bread in a box, or under a watch glass in a warm place it may grow within 12 hours, My first planting has not yet succeeded. Ehrenberg says that was the last made a great frantic epidemic has broken out in his country "which they call political illness", The idle call themselves the only "workers" The immoral and egotistical people force themselves in (or take possession of) the wheels of State, That call they Republicanism, God grant that the intoxication may soon disappear, The Monas prodigiosa always shows itself when the air intoxicates the people."

TORREY BOTANICAL CLUB
HERBARIUM
COLUMBIA UNIVERSITY

West Point. April 15, 1857

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My dear friend

Your letter came to hand this morning, and I will not wait until the package arrives before I answer you. I am glad to hear that you are relieved from Brooklyn Street drudgery for the present, and are now enjoying the charms of Spring in the country. Cold weather hangs on here, and when I contrast it with that I was enjoying in Florida last April I can scarcely realize that this is Spring. I am still on the lookout for a snow storm, for we always have one in April which I take advantage of, to fire off my big gun the Carbonic Acid apparatus, I believe it will come yet, although we have the Erythronium, the Hepatica, the Sanguinaria, and the Dutchmans Unmentionables in profusion.

I had last week a pleasant visit from Dr Gilman and Mr Johnson and we worked and talked microscopy for two or three days very pleasantly, and without any very perceptible effect upon my throat, which is much less sensitive than it was when I saw you last. When may I expect to see you here? I should enjoy a good old fashioned chat very much.

I have nearly got through that job of Dr. Ex. Ex. Algae and hope to send off drawings and manuscript very shortly. But for Harvey's help I should never have done any thing with them. As it is, I only claim the Diatomaceae as my share. I had a letter from Harvey recently, in which he mentions Gray as hard at work at Kew.

I shall send you in this letter a specimen of the Nitro prussid of

of my make
Soda, which may save you the trouble of making it, if you have not
a specimen. — I have a short notice of it, use as a test for Sulphur in the
forthcoming number of Silliman — To see how it works, cut off a little
bit of your finger nail, fasten it on a slender platinum support, moisten
it and dip it into a mixture of carbonate of soda and starch, then heat
for a few moments by Blowpipe, Dissolve the fused mass in a drop of water
on a watch glass & cover over a bit of white paper, and add a mere particle
of the Nitro prusside (not bigger than a pins head), a fine purple will
at once appear indicating the presence of Sulphur in the nail. The use of
the salt as a test for Sulphur depends on forming an alkaline
sulphuret, by means of carb. potassa or soda, (and carbonaceous matter when
necessary). All alkaline sulphurets give the "magnificent purple" with
the Nitro prusside — I have repeatedly got a distinct purple
in acting on a bit of human hair less than an inch in length. The use
of the salt as a test for alkaline sulphurets I do not claim, but "what
I claim as my 'invention'" is the application of it as a test for Sulphur
in all its forms. I also use it as a test for Ammonia and
the for Nitrogen — If gaseous matter formed into a solution
of Sulphuretted Hydrogen forms an alkaline sulphuret, but sulphuret
must contain Ammonia — I therefore heat the nitrogenized matter alone
in some cases, or with hydrate of potassa in others and pass the
gaseous products into water, I then add a drop of solution of Sulph.
and then a bit of the Nitro prusside, the purple colour at once appears
if the substance heated contained Nitrogen. These tests are of wonderful
delicacy as you can easily convince yourself.
I am getting out a Smithsonian paper, which the printer delays
most provokingly, It is chiefly a catalogue of microscopic

forms seen in the South, but I do will have some interest to mien especially
Tell Elsie that I would have answered her note if Mrs B. had
not promised to write to Jennie in a few days, which she would have done but for a Neuralgic Headache brought on in part by attendance
on Mrs Capt. Boynton who after three days of intense suffering
and great peril, gave birth to a dead boy.
With the boys and I are talking of a visit to my Mother in
Maine, I think I shall enjoy rambles in those grand old woods
very much, although they have been much broken in upon since
I first visited Rose in 1832.
My kind regards to Mrs Terry, a kiss for the girls, and sincere
friendship for yourself from your ever
J. W. Bailey

CORRESPONDENCE
BUSHNELL
COLUMBIA UNIVERSITY.

Dr. John Torrey

Princeton

New Jersey

Prof Point. Aug 9. 1849

My dear friend

I fear I have trespassed too long upon your patience, and yet I can only plead the inertia of a convalescent, as my excuse for not writing sooner, and the fact that I had nothing of any interest to say or to send you — I have done nothing all summer, and on account of the Cholera have made no excursions — I had fully made up my mind to go on to the Cambridge Meeting, but as I see by the papers that the Cholera is increasing in Boston, I think it most decent to stay at home — This feeling will probably keep many others away, so I presume there will be a small attendance — Have you heard any thing of Harvey? — I saw his name on the list of passengers by the

Europa, and directed a letter to his
house of his relations in New York the
last have received nothing from him, so
that I am in doubt whether he has come
to the country or not. A letter came
here recently directed to you, which I
caused to be forwarded to Princeton.
I am anxious to see Harry, and want
him to spend some time here, if he will
come we may put Moze Algae into
some kind of order.

Tell Jenny we saw "Mr Aleck"
Yesterday and he is very insistent at
her not coming - He is ready to come
to Princeton to escort her whenever she
pleases - He have also been much
disappointed at not seeing her and
her sister here this season - Our love

to them all—

I want you if you go near Nat Pond which we visited together to fill a couple of bottles with "stuff" as we collected there once before and then to add some preservative liquid (Goadby's is 4 oz salt, 2 oz alum, 4 gr corrosive sublimate, 2 qts boiling water)
You can then keep it until you have a chance to send to me— There are many forms in those ponds I want to study— I hear Nat Spencer has made some losses for persons in Boston which have given great satisfaction— I am glad to hear that he is meeting some of his orders, The want of promptness hitherto has injured him— I have had a letter from Marshall of London which fully clears him of all blame in that matter of

the Navicula Shetlandii - He says he did not know that any notice was to be published in the work until he saw it after publication - He also says that Quekett had only seen my first letter, I am not yet sure that de la Rue can clear his skirts, but as he is coming out in Silliman with an article on the disputed structure of the Boston test we shall have a chance to take a shot at him if necessary.

My health is now quite good, but I do not feel confident that my throat will bear lecturing - It gets hoarse if I talk much.

We shall be most happy to have any and all of you whenever you can come

Yours ever cordially

J. W. Bailey

SMITHSONIAN INSTITUTION LIBRARIES

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HEADQUARTERS
COLUMBIA UNIVERSITY.

Mad Point, Aug. 12, 1862

My dear friend

I knew your kind heart would well to doubt for a moment that you would feely deeply both for the dear lost ones, and the more unfortunate survivors, the friendly expression of sympathy brought me by every mail, are not without some soothing influence and when they come from such a friend as you they are duly welcome.

We are all well, and are getting along as well as possible - I endeavour to perform all the duties which I feel incumbent upon me, and which I retain my health I doubt not I shall be able to take proper care of my boys.

Give my sincere affection to your family and ever believe me your true friend

J. M. Bailey

OBERLIN COLLEGE LIBRARY
HERBARIUM

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West Point. August 29th. 1886

My dear Friend

I hardly know how it has happened that I have not answered before your very kind letter, which we got just as we were starting for R.I. but as the many obstacles to letter writing which existed while on our journey are removed now that we are safely home again I will delay writing you no longer. We spent 4 or 5 weeks in Providence and all of us were taken sick one after another with Cholera Morbus, so that there was little pleasure until we moved to New Port and got well again - I went on one interesting tour while staying in Providence. Olney, Thurber & Hunt — three zealous young botanists from Providence joined me in an excursion to the south part of R.I. — a country which is amazingly like New Jersey - We found there hundreds of acres covered with Rhododendron growing most luxuriantly and on the shores of Worden Pond we noticed Cronium aquaticum Conostylis Americana and other things which had not been seen in R. I before I kept a look out for Algae chiefly, and found some fine ones in that pond, among them, the curious Coleochaete scutata parasitic on stems of aquatic plant, It was only detected about a year ago in Europe.



We went next to the shores of Narragansett bay, and made large collections of marine Algae - I was delighted at finding Sargassum vulgare, growing attached to rocks and stones. Harvey speaks of it as "a native of the tropics" During the week I spent at New Port I got many good Algae, and I can now enumerate over 100 species of Algae which I have collected from American localities - I propose to publish a list as soon as I have time to study some of my specimens more carefully. I have large numbers of duplicates and feel tempted to publish sets of them for the use of our botanists.

I had my microscope with me at New Port, and this enabled me to study many of the minute forms which are common, and yet as commonly overlooked. On the shores of partly dried up fresh water ponds I found great abundance of the curious little Botridium granulatum  , See Greville

I am somewhat puzzled in the determination of some of my Polysiphonia, Confervae and Ectocarpae and would like to look over your specimens of these genera again - Most of our Algae are easily determined and agree closely with the British species - I would enter at once into correspondence with Harvey - but I do not wish to interfere with Olney who said he intended to send him specimens through Gray.

I fully meant to have visited Gray, and but for our unfortunate sickness at Providence I should have made a descent upon him at Cambridge. We have spent so much money this summer that we must now content ourselves at home for the rest of the year.

We arrived here the night before our great Leaders Ball, and scarcely had we opened our doors before 12 guests "threw themselves upon our hospitality!" and we without any servant except old Nancy and with every thing in the confusion resulting from 6 weeks absence were compelled to be "sadly civil" to people who were mostly strangers to us.

The bustle is now over, and we are getting settled down again, but do not expect much comfort in the housekeeping line until after the 1st of October. We have seen the promise of a good cook, and are trying to get along until then with one who as she says "never lived in a gentleman's house before" We hope that Mrs T. and the girls will come up in October and that we can give them a comfortable as well as welcome reception

I shall soon make up a package of Algae for Bory de St Vincent and would like also to send some to Montagne, Duby and to Agardh. What is the best way to send?

Can you negociate for me with Sullivant for a set of his Mosses? I will supply him in exchange with as complete a set of American Algae as can be obtained, including many things which no one else can furnish him with, and will continue to supply him with new species as they come to hand.

I hope he will become interested in the fresh water Algae of the West.

Do let us see you soon.

With sincerest regard for yourself and household

I remain as ever

cordially yours

J. W. Bailey

CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Dr John Torrey
Princeton
New Jersey

West Point. December 2. 1847

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY

64

My dear Friend

I have been back but a few days from my journey to Ohio I had a pretty rough time both going and coming, [redacted] dodged a severe gale on Lake Erie by putting into Fairport where we lay two days waiting for the storm to subside, and if did not do so, then left the boat and went on by stage to Cleveland. I found our sister a sad picture of woe, and she says she believes she would have died had not my letter and promised aid afforded something to hope for in her desolation. She received every attention among the citizens of Cleveland but she could not be reconciled to stay among strangers, and it is only among relatives that she can hope to regain her strength and to bear up under the overwhelming calamity which has befallen her. She is left almost destitute, and Government only allows her $20 per month for five years.

I trust that her other relatives will join me in contributing to the support and education of the afflicted family. Something must be done also by Congress to meet such cases— Gen. Scott sent on to Mrs Merrill $400 as her part of $2000 which he had caused to be assigned for the benefit of the families of certain deceased Officers— I saw at Syracuse Mrs Capt. E. K. Smith who also received $400 under the same circumstances, She said that when she received it she had spent her last cent, and that she has now nothing to look forward to but a life of struggles and poverty.

I am pleased to hear of Agassiz's success, and the substantial compliments given him, I trust that he has really roused up the Knickerbockers to perceive other treasures beyond gold and silver. I rejoice at the spread of the taste for microscopic research. If Spencer can only turn out instruments as fast as they are now called for what a

harvest he may reap. I want him to produce, as I fully believe he can, lenses which will fully equal those of Ross or Powell. Then he will occupy a position as one of the first opticians in the world.

While at Cleveland I had an opportunity to collect from the pier projecting into Lake Erie some of the Algae and infusoria of this fresh water sea, Although not equalling in beauty the marine productions of our coast they were not without interest to me. Among them I found that curious thing Gloeonema paradoxum Ehr. in very great abundance, This was the first discovery of it in a living state in this country. I was enabled fully to satisfy myself that Berkely of England was wholly mistaken in his statements concerning it. He maintains that it is only a string of ova and that he has watched their development into aquatic larvae. I have no doubt he founds strings of ova which he mistook for Gloeonema, but I am perfectly sure that what I found were true siliceous infusoria. This figure will give you an idea of the bodies in question. They consist like Anabaena of long tubes within which are placed one or two rows of animalcules. Thus



The animalcules move freely within the tube, They have a siliceous striated shell and when separated from their tubes cannot be distinguished from particles of Coccconeis They have no character belonging to Oval — I send a small portion of matter from the pier which I macerated and pulled apart with needles will give you some of the tubes with the shells, but not with the beauty of the living creatures.

I send you also a good American specimen of that beautiful thing the Isthmia obliquata, It is so large as not to require a high power Please give a portion to Dr Gilman also.

I also send some of the Maine earth, but I cannot identify the particular form which Spencer considers as so difficult. Ehrenbergs figures of Navicules do not give sufficient details with regard to the minute lines— The large individuals which are so common in the West Point and Maine deposits, show their markings with great ease, while the smaller ones which do not appear to differ in form are very difficult objects.

Have you shown any of the new microscopists the spiral hairs on the seeds of Collomia? They always excite admiration

Your umbella is on hand and if I can find any opportunity I will have it left at Wiley and Putnams. I do not think it probable that I shall be down again this season— It is always unpleasant to quit W.P. after the day boats have laid up—

My kindest regards and that of my family to Mrs Bailey

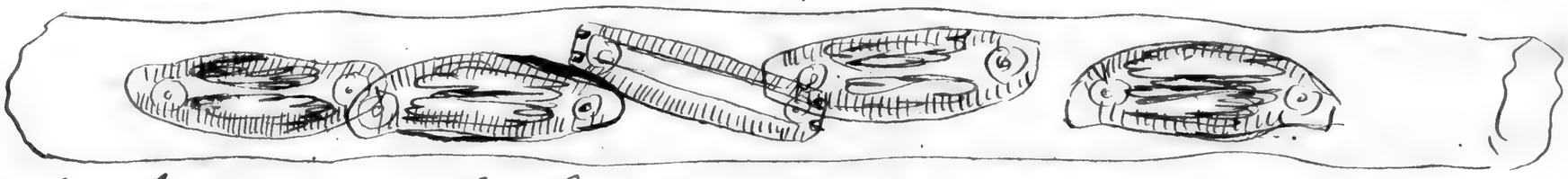
TORREY CORRESPONDENCE
COLUMBIA UNIVERSITY.

Cordially as ever
Yours J. W. Bailey

harvest he may reap. I want him to know
lenses which will

Dr John Torrey
Phys. & Surgeons
Coll. of Physicians & Surgeons
Prof. of Botany
Crosby Street
New York

[illegible] network
[illegible] what I found were true
[illegible] an idea of the tubes
[illegible] of long tubes within which are
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placed

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Please give a portion to Dr Gilman also.

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY

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West Point. Dec 29th. 1846

My dear Friend

Your letter arrived just in time to be taken as a Christmas greeting, and in return I send to you and yours our most cordial wishes for happiness and welfare in the coming year. We missed your usual autumn visit very much, and I have been prevented from seeing you in New York, by a severe cold which rendered it improper for me to travel at this season. Thus we have been an unusually long time without having one of our old fashioned talks. We must therefore have a chat on paper. You ask how we like Agassiz We were greatly pleased with him. He at once seemed to feel at home with us and we kept him several days, We made sundry excursions in this neighborhood and he pointed out what he considered as moraines, roches moutonnées &c. and really his theory seemed to apply well enough to this particular locality, but when I went with him to Albany, and he entered for the first time into the bed of our vast Silurian Oceans, the drift phenomena appeared to present ~~them~~ appearances which were new to him, and I heard him say no more about Glaciers. He appears to be a very amiable as well as learned man, and we all became much attached to him. I spent several days with him in Albany, and he was greatly pleased with all he saw there I had the fortune to see him when Hall first showed him his splendid specimens of Holoptychus from Blossburg, Penn.a. It was a sight to see! particularly when he whipped out his jack knife and without leave asked began to pick away the stone and expose bone after bone in the most interesting connection, I could not but fell for Hall when I saw the operations commence, but he had no reason to regret the results.

Another amusing scene was at the River—buying fresh water fish. Imagine our worthy Swisslander, seated in a muddy scow half full of dirty water, into which

a fisherman emptied by the half bushel at a time, a goodly assortment of sun fish perch, pike, pickerel, muscalunge, Oswego Bass, suckers, eels and catfish! all alive, and splashing the water about so that our friend was seen dimly through the spray, affording a spectacle which amused me, and the loafers along shore, not a little. He brought nearly a bushel, which he packed away in Alcohol and sent to Boston. I wish you, Gray and Agassiz could be here together, and that we could unite in some excursion. When does Agassiz go south. I am glad to hear that his lectures are so successful. I shall write to him in a few days.

The Smithsonian Institute has made a good beginning indeed, in the selection of Prof Henry. This I think will secure the success of the whole, I trust that they will follow out the same course, and give you the chair of Botany and Agricultural Chemistry, The Report of the Committee seemed to indicate that the Professor of Chemistry would have the labours of a dozen men to perform, but I trust that this will all be regulated soon by men who know and appreciate scientific labours. I suppose that there will be considerable competition for the Chair of Chemistry, Who are the candidates? You of course would prefer what you mentioned, to the pure Chemistry.

I hope sincerely that you will get hold of the Expedition plants, nobody but you and Gray can do them justice, How I long to look at the Algae, which were, or ought to have been, collected on the voyage. I might possibly help you a little with regard to them, for they are my special favorites, I must put up as soon as possible a package of Algae for the Agardhs, I sent through Gray a lot to Harvey, Montagne and Bory,

The Highlander is now running and I presume it would be perfectly safe to send up it the book from Agardh, and the Algae which I asked you to lend me. I am particularly in want of the Confervae. as I want to study Schweinitzes Carolina specimens to include them in a list I am now making out of N. American species.

I am gradually accumulating a good supply of first rate specimens of the dullest vessels from Anthracite, and in the Spring can supply you with both transparent and opaque specimens which may be acceptable to some of your correspondents. If you will mention the names of some of those most likely to want them I will fix up some for them.

I am obliged to you for your directions concerning the Gun Cotton, but they do not differ materially from the method I followed some time ago, with success, and which I found in a German paper. I have no faith in it as a substitute for war powder, and I believe both the British and French Ordnance have reported against it. It seems however that it may be used for blasting. How came our friend Agassiz to be so misled by Schönbein as to believe that Gum was the material used for his powder?

Mrs Bailey says she is delighted to hear that there is the slightest prospect of [redacted] returning to New York. Give our most affectionate greetings to all your dear family and believe me ever cordially

yours J. W. Bailey.

TORREY BOTANICAL SOCIETY
HERBARIUM
COLUMBIA UNIVERSITY.

Dr. John Torrey
Princeton
New Jersey

West Point. Feb.y 16th. 1845

LIBRARY
COLUMBIA UNIVERSITY.

46

My Dear Friend

I am not so ceremonious with real friends as to wait for an answer to every letter which I send them, It was not therefore for that reason that you did not hear from me, but because like yourself I have been quite busy and had nothing of much interest to communicate, I was however just about writing to you when your letter came, chiefly to inquire how you and your good family were. You heard I believe from Mr De Witt my case of poisoning, From my own sensations I would not have supposed it so alarming as the Doctor said it was, but he judged chiefly by the copious discharge of blood - Mrs Bailey was very much frightened and in consequence was herself quite sick - I am now I believe as well as ever. I am glad that you have ~~yet~~ received your microscope and shall be exceedingly glad to have you bring it up here, and let us compare it with mine, and have some good old fashioned sit downs in the Den, which is now in as dirty, dusty and picturesque as it can well be, I shall try to make it a little more decent before the River opens, and then I shall place it at your disposal - Think, if you wish for Nicols prisms you had better get them through your London friends - Those now made in London are spoken of, as being "improved", I know not in what respect. Mine which Puckett sent me, are of the "improved" kind and work well. I have lately been amusing myself with the study of the Infusoria of the Mississippi River (at St Louis), I found a good lot of them in a bottle of the ordinary drinking water of that City, which it was brought me by a friend - If this was a fair specimen I should think that the animal matter might make it somewhat nutritious and if the hospitable inhabitants of St Louis could see some of the queer creatures which they swallow unconsciously every day, they would perhaps not be so much surprised as they now are, that strangers ~~that~~ prefer to have the water filtered. I have also found

some interesting forms in "soil from New Zealand", "marine mud from Philippine Islands" "mud from Cape of Good Hope" the specimens of which were given me by Dana collected during the Exploring Expedition.

I have not yet seen the "omelette soufflée!" but from the way that it has been dished up in the Review, ~~I fear~~ my appetite has not been much excited, I am glad to learn the meaning of that quotation; as I know "small Latin and no Greek" it was too deep for me, but is exceedingly appropriate. I am afraid G. has drawn a hornets nest around his ears - Does he keep incog.? or does he avow the authorship?

Müllers work I have not seen, for we are always two years behind-hand here - if the author however can swallow "equivocal generation" I have no faith in him. I am greatly obliged to you for the pamphlet from Agardh, but with my "small Latin" it will employ me a good many mornings before breakfast to make it out. This book being on Algae, recalls a promise which I have not forgotten but hardly know how to fulfill with regard to the New York Algae. If I really thought that anything I could draw up would not be shamefully meagre, I should at once go to work as I promised to, but my opportunities to study our marine species has been almost nothing, and the fluviatile species are rather obscure and difficult subjects. I think then a report on them at present would be premature. If you want it though, I will do my best. I shall be very glad to peruse the new numbers of the Linnea and the papers by Decaisne. I am glad if you found any thing to interest you in my paper on crystals. I hope sometime or other to attack the crystals in Monocots and shall then rely on you and Gray for specimens of different natural families

By the way, I have lately found infusoria in such unpromising specimens of soils, that I can not but think that there may be rich stores of these attached to the roots &c of some of the plants in your Herbaria. If you find any earthy matter attached to plants from the far West, or South, or to any Californian or Oregon plants save every atom for me. Of course the plants which are aquatic or grow in moist places are most likely to have infusoria attached to them - Mosses (in mass) and lichens also have these creatures very frequently entangled among them - The Western forms differ so much from ours, and so few of them have been studied that I am

anxious to get rid of them. Our Academic Board is now engaged, in tinkering up, a five years course for the Cadets, I expect to secure some addition at time to introduce the elements of Vegetable and Animal Physiology, and elements of Botany & Zoology this I think will be a great improvement, and quite as useful, even to a Soldier as many things now taught here. A taste for Natural Science once given to our graduates may keep many of them from wasting their time in low & debasing pursuits as they now sometimes do, to while away the tedious hours at some of our remote posts. I shall be glad to put Grays beautiful "Text Book" into the hands of our pupils, It will not fail to entice some of every class to pursue this delightful study.

I shall hope to see you up here as soon after we have cut as you think it will be pleasant to come, Dont fail to bring up some of your family, Mrs B. says tell Mr [redacted] Dr. "I will not welcome him if he comes alone" which I suppose means that "although you will always be a welcome guest, you will be doubly welcome if you bring Mrs & the girls with you"

You ask if we go into organic chemistry deeply here – We do not, I never performed a complete organic analysis in my life, and I only teach what I deem to be the most important principles and elementary facts – Organic chemistry must as you say soon require the exclusive attention of a peculiar class of teachers, it is enough to occupy three lifetimes at least, Let our magnates here, seem to think that the word "Chemistry" includes no more now than it did twenty years ago.

Give our kindest love to your dear family and believe me ever with all sincerity — your true friend

J. W. Bailey

Dr. John Torrey

College of Physicians & Surgeons

Crosby Street

New York

West Point. Ky. Feb. 26th 1837.

Dear Sir,

I write to give you the melancholy intelligence of the death of Professor Bailey.

He expired this morning at a quarter past 6.

His funeral will take place at West Point at 3 P.M. on Saturday.

If you know of any of his personal friends that you think would like to attend, will you be kind enough to take upon yourself the trouble to inform them of the time of the funeral.

Should you desire to attend,
you can do so by leaving New
York at 11½ a.m. and can re
turn by the train that arrives
in Norfolk about 10 p.m.

Yours
Very respectfully
Your obedient Servt.
Caleb Huse.

To

Dr Selim Tenny
Norfolk.

West Point. Jan 26 1878

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My dear Friend

Thanks for your letter, for the seeds of Bronnia and for your annual greetings, the latter of which are heartily reciprocated since the examination. I have been trying to recover health and strength by working little and skating a good deal, and I have already found the benefit of this course - My little work is chiefly upon little matters I have been making quite a lot of india ink sketches of Polystomella, Infusoria to be found in deep soundings along the Gulf Stream - I shall send them to Bache and I hope to have them published in the Smithsonian memoirs -

How I wish I had somebody to make my figures for me. It would save me both health and time - I send as you requested a sketch of one of the curious fibres covering the seeds of Bronnia - I think, from this drawing which was made by camera lucida, you will be able to understand the structure,

In figure 1 the manner in which the single fibres separate for a while into two and then coalesce again is distinct enough - In No 2. the walls of the vessel are seen which were not visible in Fig 1.

Have you tried by friend Gilman's microscope to resolve the lines on the siginoid Navicula from the Croton sediments - As Spencer says, the N. Hippocampus is mere childs play in comparison I sent specimens of this test (N. Spencerii. mob.) to Mr Cole in Salem who has lenses just like those of the Lowell instrument, and he says that he has tried every way he could think of, and has failed to see the lines - yet both Gilman and Spencer have seen them and, Spencer gives a figure of them which shows that he must have had a good view of them - Mr Cole says, and I suspect he is right, that a glass which will show these lines clearly must be ahead

best European glasses - If this is the case we may indeed be proud of our "conceited Yankee". Spencer has promised to send me an objective which will resolve this nebulous body beyond cavil, and when he does, I shall publish an account of its performance.

I shall be glad enough of a chance to do what I can with the Expedition Algae, but without Harveys aid, I can do nothing - He is a good fellow but is doubtless very busy and might not be willing to undertake a labour of this kind - All that I can promise is to request his help, and then to devote to the study as much time as I can without injury to health, or interference with other engagements - In other words, I must postpone all such studies not as a task but as a pleasure, as I told Henry in a similar case.

It will be unnecessary to send all the Algae abroad - In most cases, at least among the smaller Algae they will bear division, and portions only of each need be sent - I practised this way with some Florida Algae, and Harvey has given me the names in a recent letter, which I hope soon to publish. I have in fact a good deal of matter which I would like to have in print so as to relieve my hands of it, but I have been obliged to nurse myself so much this year that I have not been able to get many of my crudities into proper shape for publication.

There must be some nice infusorial pickings among the Algae of the Expl Cs Expedition.

We are getting on even better than we expected with our large family Fortunately we have good servants, or else we could do nothing. Mrs Merrill continues in deep affliction, and it will be long before time can even begin to efface the sorrows now graven on her heart. Gen! Wolfe has taken charge of her husbands remains, and was to send them to N. York - whilst they are received

and burial at West Point – we cannot hope to do much to divert our sisters attention from her griefs.

I would like much to drop in upon you in Crosby Street, and see you and the brethren – Has Dr Clarke got his Lenses yet from Spencer, & if so how does he like them – Remember me to my New York friends and especially give our most cordial greetings to your family

Yours as ever

I. W. Bailey

Dr. John Torrey

College of Physicians & Surgeons

Crosby Street

New York

West Point N.Y. July 1827

My dear Friend

I am now convalescing rapidly, and feel well enough to write you a brief reply to your last kind note.

I want you to understand most distinctly, as I believe I said in my last note that my consent to appear at all as a candidate for the vacant chair can only be obtained upon the assurance that you do not want the place — If you after calmly deciding the matter can say that without any reference to my wishes for the office (and in truth I have scarcely formed any as yet) you are better satisfied to remain as you are, I am then willing to become a candidate; provided again that you and Henry after making the matter a subject of reflexion, think that my chance is a good one. I have no notion of becoming a supplicant for the place, for although it appears to offer some advantages over my present one, yet I am pretty well off now, and know the value of some of the advantages I enjoy.

Until you decide that you will not become a candidate I do not wish to have my name connected with the business at all — and shall allow myself to form no plans with regard to it. If you want the place, you ought to have it and I presume would be chosen unanimously.

Please say nothing about the business so far as I am concerned to any body except Henry and Gray

Many thanks to Mrs S. and yourself for your invitation to ride up from Long Branch; but we must decline a visit to Princeton at this season, it is too hot. I may however be over for a day or two myself, and perhaps take my daughter with me.

I have not yet had time to look at your epithyon fungus, but will examine it shortly.

I expect to start for Long Branch early next week; say Tuesday or Wednesday, I shall not stay there more than a week or 10 days and shall then return to W.P. where I shall be most happy to see you and your dear family

Yours in all truth

J. W. Bailey

P.S. You can direct to me as usual at W.P.

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UNIVERSITY.

Dr John Torrey

care of Prof. Gray

Philadelphia – Sunday June 16 1850

TORREY CORRESPONDENCE
HARVARD
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My dear Friend

I have got safely thus far back on my journey and am certainly no worse, and I hope a little better for my journey – I expect to leave here tomorrow and have promised myself the pleasure of seeing you and your dear family for a short time in Princeton – I can only stay with you however a provokingly short time as I must be home by the 19th or 20th – I hope I may find you at home and that you and your family are all well –

I have a few southern plants – rough dried! – and a collection of plants from the Far West – near Santa Fe – to show you, and I have much to talk to you about

Hoping to soon be see you, I will not write more now

Yours ever cordially

J. W. Bailey

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

West Point. June 30th. 1848

My dear Friend

If you did not know as well as I do, the horrors of one of our Examinations, I could not as I now do avail myself of them to excuse the apparent neglect with which I have treated your last kind letter. In that letter you gave me some reason to hope that you and the girls might be here during the Exam.n but we looked for you in vain. Your very kind invitation to come on to Princeton was most thankfully received, but after many pros and cons we at last concluded to postpone our visit until cooler weather, for although you may not allow that Princeton is a hot place you cannot deny that a journey from here there, in summer is a little scorching - I expect to start from here soon after the 4th of July to go on to Washington to examine a cabinet of minerals which it is probable may be bought for the Academy - It is not impossible but I may stop a day with you on my way to Philadelphia if your lady folk will let me in, coming as I must alone. I want to pump you about the prices of mineralogical cabinets, and also about the management of friend Wilkes - From his last letter, I judge that our wiseacres at Washington had rather not have the Algae described

at all, than to have them sent abroad for determination - Wilkes referred however to some plans of Grays about going to Europe and seemed to think that Gray might manage the business - You can tell me about this when I see you - If you are not likely to be at home the week after the 4th, let me know at once, and I will postpone my visit until my return from the south -

Spencer and I are enjoying very much the agitation which our Cretan test the Navicula Spencerii is causing among the Londoners - I sent out mounted specimens all of which I could easily resolve with Spencers objectives, and after a month of trial with the best glasses in London, they report "they can do nothing with it" They of course imagine that Spencers glasses are something very superlative, or else that I draw a pretty long bow. Will they not be vexed when they learn that it is their own mismanagement which has alone prevented them from resolving this test object, and when they learn that I have resolved the same object with English glasses made by Powell and owned by Dr Beck of Philadelphia, and that the resolution may even be effected with Powells $\frac{1}{8}$ th objective! The whole of their trouble has been caused by their striving to combat illumination - There is such a discrepancy in the rating of Spencers and Powells objectives that I cannot yet say which are the best, as I have not been able to compare equal powers - All of

Powells magnify more than those ruled by Spencer as being of the same focal length. This is the more to Spencers credit, for if a glass of low power will reveal the lines which have heretofore needed a higher power, it is so much the better glass. Powells glasses are very fine.

Our Exam^n is now over, and I am only waiting until after the 4th to escape the "Independent" mrs and wardies of that week, so that I can travel in comfort. Don't forget to let me know if you will be at home. We are all well, and all unite in kindest regards to your family and self

Yours as ever

J. W. Bailey

TORREY CONCILIUM PLANCE
HERBARIUM
COLUMBIA UNIVERSITY.



Dr John Torrey
Princeton
New Jersey

West Point New York March 17th. 1846

My Dear Friend

I know you will join with me in a little enthusiasm at the beauty of the specimen I send you of the oldest dotted ducts known! Where think you I found them? Why in the very place where you and I years ago sought for vegetable structure without much success, viz the ashes of Anthracite! - I was led to examine again by the account given in the last number of Silliman of the results obtained by Schultz by means of Nitric acid upon "coal" (probably bituminous) I was just about trying his process, when it occurred to me that I might find the decarbonization already effected in some of the portions of partly burned anthracite coal which filled a grate which a fire had been allowed to smother itself, without poking - I found on carefully taking out these masses, that they readily separated into laminae on almost all of which, when magnified, the traces of vegetable fibre preserved in the silica were too distinct to leave any doubt of their origin - Most of these laminae were of great tenuity and the different directions of the parallel fibres in different layers or even in different portions of the same layer, showed decidedly that did not result from masses of carbonized trees, but from fragments of plants of no great size - Many of these laminae showed vegetable structure distinctly without however offering any striking peculiarity; but the specimen I inclose as well as some twenty or thirty others have presented results of most unexpected beauty They show layer upon layer of dotted ducts so perfectly preserved in the silica as to rival a recent preparation from a living plant! These specimens which show this character are of exceeding beauty as opaque objects, but they may also be mounted as transparent ones, (like the one I send you) by melting a little of considerably inspissated Canada Balsam upon a glass slide, and then while melted touching it to one of the silicious layers. If it is then

allowed to cool without being disturbed, it may be pulled off from the mass carrying with a thin layer of the silica showing the dotted character quite distinctly (see Specimen) The Specimens are best if the Canada Balsam merely adheres to one side of the silicious plate, without completely penetrating it. So you must not try to improve the Specimen I send, by melting it again.

I think of many interesting results which these observations seem to lead to. 1st They show that the vegetable matter from which the coal resulted was not reduced as is commonly supposed to a pulp in which the organic fabric was destroyed - 2d It did not come from large trees, nor from ~~[illegible]~~ fern leaves, for I have found but one fern leaf as yet in the ashes, 3d Much of the coal seems to have come from a plant composed almost entirely of parallel dotted ducts, which I am inclined to think was the Stigmaria. Lindley says the wood of this plant was composed entirely of spiral vessels, but his figure shows that either no very high power was used in the examination, or else the specimen was too obscure to allow it to be decided whether the vessels were really spiral, or merely spirally dotted -

You must not suppose that these results were attained merely from Specimens of slate mixed with the coal. The best results were got from undoubted anthracite, of a conchoidal fracture and glossy black colour - Indeed some of my Specimens which I kept as Payne objects show the pure white silica where most burned gradually passing inwards into a mass of perfect anthracite, and the whole showing the dotted ducts in full perfection -

I shall probably publish some notice of this in the next no. of Silliman Until then we had better keep it among ourselves, i e you, Gray, Henry &c.

I write in much haste, but hoping the Specimen will reach you uninjured
I rely on its merits to pay for the trouble of perusing this hasty scrawl

Did you get some Texian plants I sent you via Bolton Sta.
I want to write soon to Lieut Eaton who sent them so please let
me know if they preserved any thing of interest.

Our kindest regards to your family and Prof Henry. When shall
we see you here again, Tell Miss Maggy Red if she comes again
I will go to Mrs Hegeman's or any where else with her if she will let me

Yours in all sincerity
J. W. Bailey

The Specimen sent you will see needs only a moderate power.
You will doubtless soon make for yourself some vastly better ones.
The Sprague Specimens are very beautiful, particularly where the decarbonization
has just commenced so as to show the silica relieved by a black ground

I have put in a small bit as an Sprague. If it reaches you safely you will find
on one corner a whitish portion showing the vessels, It is an inferior Specimen
but all I can send in a letter. I have pieces several sq. inches in
extent all covered with these beauties:

W. P. March 10. 1849

My dear friend

I have been trying all the week to dodge a head ache which would not stay dodged and so I was obliged to dodge your letter also, lest you should think I meant to give it the go bye entirely. I send now this short note. I hoped that e'er this one part of your letter would be answered in Silliman's Journal, but for some reason the number for March has not reached me, if it is out. You will see when you get it that I have fired off the first gun, and if John Bull does not like it why I will give some of him calibre.

If Gilmans wants to take a shot there are the facts furnished in my article, which if dressed up in the good doctors style, would make quite a "flash". Let me know when you write whether I have done right in keeping my temper with Mr Cockneys.

I have just got an invitation from Dr Bowditch of Boston to attend some

kind of a medical gathering in Boston next May. He expects to get some of the microscopists together, and thinks that one day or evening might be devoted to microscopy. He suggests that Gilman may attend — What think you? Will you and Gilman go? Will it pay?

I like Dr Bowman much, but I hate shaving off hot objects in a crowd — It is a horrid bore, and to be avoided when a decent excuse can be had — I think my professional duties here will be very pressing about the time of said meeting.

Did you get the letter from Leonard which I sent you — Harvey speaks very highly of him and says he is exceedingly

liberal with his specimens, though his name cannot always be relied upon. H. uses Klitzing up in a manner which is repelling to one who have long doubted his merits.

The microscopes at $28 are certainly cheap! but what can a man do with but one power ... A Ph at only of 250 or 300. Rely upon my experience Ph at a real worker will never be satisfied without glasses which will show him all Ph at can be seen. I now use my $\frac{1}{16}$ made by Spencer in examining almost every thing, and feel Ph at I know nothing about the real structure until Ph is has been brought to bear upon it. Take for example our old friend Ph e Navicula (Pinnularia) viridis, Ehr. A power of 350 shows Ph e large transverse ribs, while $\frac{1}{16}$ and it would be easy to mistake Ph em for actual perforations, but a good $\frac{1}{16}$ brings out a finely reticulated or striated surface exterior to all Ph ese and covering Ph e whole of Ph is I hold the conception until Spencers glasses

revealed to me,

I am very, very busy with Dr. new Cabinet, and work just to the border of sickness and then reluctantly steal away for exercise - But I shall quit the minerals as soon as Dr Hepatica, Eupepsia, and Dielytron come out, which must be in about 2 or 3 weeks. The steamboat comes up every day and tries to get to New Bruns but Rice of which cold Spring stops her

Remember me one me Next Thanksgiving visit, and come up soon and stay a.

My love to Jenny and the rest of your family

Yours cordially

O. C.

J. W. Bailey

I enclose a note to Marshall for Mr Rutherford.

West Point. March 21. 1852

RECEIVED
MAR 31 1852
CORNELL UNIVERSITY

My dear Friend

I hope I have not trespassed on your kindness beyond hope & forgiveness by delaying for so long a time to write to you. As my silence was not caused by any want of cordial regard for you I suppose I need not enter into a laboured apology for neglect which was not intentional. I have been trying for some months to get my collections into something like order, and to clear away the rubbish from my den. I have had a hard job of it, and many a bucket full of rejected glass slides, impossible earths of poor quality, algae badly preserved, minerals and fossils not worth keeping & be were taken out before I felt as if I had elbow room

I think the old harvest about two removes being as bad as a fire, does not apply to serial scientific collections. I think they need a good overhauling once in two or three years, and that no scruples should be felt in rejecting inferior specimens. Where do you keep your fine herbarium now? You must miss your convenient study at Princeton very much. I suppose you have seen Harvey's volume on the American Algae Melanosperm. Is it not fine? It ought to be noticed in some of the Journals. Will you not give him a paragraph in Silliman?

What are you busy about this winter besides the lectures? Do you find much time for microscopy. I suppose

Judge Johnson has shown you the
fine 1/12 which his brother was fortunate
enough to get. I have not yet heard from
Marshall and do not know how he likes
my course, in not securing this lens for him.
He appeared however so much surprised
at the price which Spencer asked, that
I could see no alternative, but to let
this lens go to other hands, and then if
Marshall chooses to order another at the
same price he can do so.

I am waiting for an engraver to sell
a plate ready for a short Smithsonian
Memoir. It is very provoking to be delayed
so much. I sometimes feel tempted to
learn to etch myself, and then declare
independence of all engravers.

My health has been good all
winter, and I can use my voice

with considerable freedom, even so much as to lecture for an hour and a half at a time — I am afraid we shall have no Hepaticas nor Erigeas this month.

The snow is now several inches deep on all our hills, and the Thermometer is below freezing. — I hope your dear girls and Mrs Torrey are well. They have had many trials during the winter.

My daughter will leave us in May to go to school in Burlington.

When the Spring flows, can you not run up and pay us one of your old fashioned visits. It is long since you have been here. Give our kind regards to all your family

Yours cordially

J. W. Bailey

LIBRARY OF THE GRADUATE SCHOOL COLUMBIA UNIVERSITY

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

West Point. May 22d 1848

My dear Friend

It is hard work to get a letter out of you lately, but as I want your advice greatly I must try and pump you a little more. I have just got a letter from Harvey in which he expresses his willingness to share with me "the authorship honour and proceeds" of the job of Exped.n Algae. but he adds "on the condition that the work is not required to be done before this time twelvemonth, and that the whole of the collection is submitted to my examination" He says "I feel that I should not be able to do justice to the subject without having before me all the specimens of each species, the data generally brought home by voyagers is puzzling enough without increasing the puzzle by having a part only to decide upon."

Harvey is clearly right in this, but what I want to ask you is this: Is there any prospect that Capt Wilkes will authorize me to send the collection abroad? There is the risk of shipwreck and the total loss of the collection. As the specimens were entrusted to my care I do not feel authorized to let them go across the water without the sanction of Capt W; Harvey will also expect to be allowed to take one specimen of such interesting plants as there may be duplicates of.— I am afraid that if I request Capt Wilkes authority for these two reasonable demands of Harvey that there will be some vexatious balk in the matter. Yet without authority I will not venture to act. Tell me how to manoeuvre will you? If Wilkes will not consent, then I must beg leave to return the collection to Washington in statu quo, and wash my hands of the whole affair.

Harvey says I should stipulate for 10 copies for each of us of the report when printed - I forgot this but I presume it can still be accomplished

Do write soon, and tell me what is the most politic course to pursue in this matter.

I had a visit recently from Spencer, and had a nice time in resolving the Lyrae Navicula and other difficult tests by all kinds of light candle light, foggy day light &c all enabled us to see these lines which are so difficult to catch right of - I recently stirred up the Philadelphians by sending to Goddard some mounted specimens of the A. Spencerii which I supposed some of the Philadelphia microscopes and scopists might resolve. After many trials they all gave it up, "they could do nothing with it", and Dr Beck then came on to West Point to see the lines "if they were to be seen" I soon showed them to him not only with Spencers objectives but also with his own made by Powell of London. Indeed the Powell objective showed them with the greatest ease, being of a somewhat higher magnifying power than Spencers. In other respects I could not see that there was any material difference - Why Goddard did not succeed in resolving this test I cannot tell. I always thought that the Ross and Powell microscopes were as good as Spencers and they are the only ones I have yet seen which will compare with them.

I visited Gilman a short time since, his 1/12 will not quite resolve the A. Spencerii, or at least I did not succeed in making it do it. He tried to get up a collection of microscopes one evening, but there were only a few present.

Mrs Merrill and family have now left us and gone to Maine.
We have just got through house cleaning, so you and Mrs T. or Rogers need not be afraid to run up and see us, whenever you can make it convenient. Our kindest regards to self and family

Yours ever
J. W. Bailey

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Dr. John Torrey

Princeton

New Jersey

West Point. November 1845

Wednesday Morning –

My Dear Friend

I have to run, in a few minutes to recitation; but I must take time to thank you for your letter, and to tell you that we shall be delighted to have you come up as you propose at Thanksgiving. We hope that you will bring all of your family who may be able to come, and that you will spend some days with us. I long for a good old fashioned talk with you all.

Mrs Bailey thanks you for your interest in her headaches. She says that as she has just got through one of them, she is not likely to have another for some time, So you need not fear that she will have one to prevent her enjoying your visit.

I have not yet got into the new Chemical Room, and there is much with regard to it, which I would be glad to consult you about. I have aimed at having a large, airy, well lighted and convenient room, but many of the small "traps" I am still debating about, and you can aid me very much by the benefits of your knowledge and experience

Great respect was felt here for the lamented Dod, and I have heard every one deeply regret his loss. It must be deeply felt at Princeton

Thanksgiving Day is I believe next Thursday (Dec. 4th) and we shall depend on your coming, I can then say, much which I now leave unsaid

Ever Yours most sincerely

J. W. Bailey

Dr John Torrey

NEW YORK BOTANICAL GARDEN
HERBARIUM
COLUMBIA UNIVERSITY

COLUMBIA UNIVERSITY.

West Point. N.Y. Oct 28th. 1846

My dear Friend

Your note gave me very welcome intelligence with regard to the promised visit of Agassiz - I shall be greatly pleased to make him my guest, and I think I can find a good deal both in and out of doors to show him - Our rocks show plenty of glacio-aqueous action and I suppose he will "roches moutonnées" moraines laterales &c in every direction around here.

I hope you may be able to come up with him, but if you cannot, you must try to get up with some of your family before snow comes. Can you manage to send up to Agassiz the Algae I asked for, and some numbers of the Microscop. Journal which I sent you.

I got the other day from England a fine lot of microscopic fresh water Algae &c put up in liquid, by Wm. C. Williamson of Manchester Eng. They confirm many of my guesses concerning our own species. If you meet Agassiz again, dont fail to urge him to come, and tell him I shall expect him as my guest. I can perhaps arrange so as to go with him to Albany where Hall will be most anxious to see him.

Yours ever most cordially

J. W. Bailey

I inclose for you a leaf of Sargassum vulgare, covered with a new species of Synedra, which I have named Synedra undulata - It is the best test object that I know, requiring my best and highest powers, with good management of light to show the fine striae upon its sides - It possesses the advantage over the Podura scales, of being uniform in its charac[illegible]

West Point. Sept. 5th., 847

My dear Friend

I have been intending to write to you for some time, but sickness has prevented until now. About a fortnight ago, I joined Harvey in New York and went for rail road to Greenport L.I. where we spent several days very pleasantly among the sea weeds. We made one dredging excursion, and got some good things though but few novelties. I like Harvey much and enjoyed his conversation. On returning to N.Y. Harvey was taken sick and I had to leave him in this condition at one of his friends and returned the next morning to West Point where I was myself almost immediately attacked with a severe headache from which I have just now recovered—

During my sickness Harvey came up, and we spent one day together over Wilkes's weeds but after that I had to keep my bed and let him work alone— He has found several

new and interesting species, and determined the names of many others. I am now in hopes that a further report may be made upon the whole.

I have written to Prof. Henry urging him to get Harvey to write for the Smithsonian Memoirs a paper on North American Algae. If such a paper could be published free of expense to Harvey, he would visit our southern coasts and dredge in many places where good results might be hoped for. As Harvey is the very Prince of Algologists he would make a fine work of this subject — Do use your influence with Henry to have this work done.

We have N. Cholera here at Carl; It has been all around us, at Canterbury, Fishkill & for some time, but no fatal cases originated here until a day or two ago. We have had in the last 3 days 2 fatal cases, one a cadet,

and several persons were taken quite sick yesterday, supposed to be cholera cases—

When the scourge leaves us, I hope you and your good lady will come on and see us, It is long since we met, We miss Jenny very much and long for a visit from her and her sisters—

The fruit of the Albizia is quite interesting but I notice nor peculiarity in the spiral hairs they seem to be like those of Ruellia &c only smaller.

Enclosed I send a list of Nyctagineous plants raised in my garden, from a seed brought by Dr Peck from New Mexico, It is now flowering freely — What is it?

I have a second letter from Lenormand in which he reiterates his wishes "d'entrer en relation avec M. Torrey". He has been exceedingly liberal with me, and really seems an exception to the Frenchmen— I have a package nearly ready to send him, so if you choose to make up some phenogs. they may be sent at the same time. Give our best love to Mrs T. and

Thats nice "gals" of yours and believe
me ever as Lenormand signs himself

"Votre tout devoué et affectioné"

J. W. Bailey

Harvey is now at Hyde Park - I shall
write to him in a few days and get him
to come here again if possible - His usual address
is C care of Abraham Bell 423 Broome St
New York.

Have you read Harveys Sea shore
Book? - It is capital, though chiefly adapted
to the English coast. The edition was
exhausted at once.

West Point New York
Sept. 15 th. 1847

BARLEY CORRESPONDENCE
OF ROBERT
AND LYDIA PINCKNEY

My dear Friend

I have been very much driven ever since I returned from my pleasant trip to Cambridge, or I would have written you sooner I rejoice with you that the Philadelphia business is settled, and I am glad too that you will keep near us. I suspect we will both be better off in the end where we are — As to myself, I never formed any plan, and indeed scarcely thought of myself as a Candidate after I received your second letter upon the subject. I supposed that if you wanted it you would get it without trouble, but I was not aware of the extent of the Philadelphia feeling.

I should be perfectly satisfied with my position at West Point but for the never ending trouble about servants, and the difficulty about getting proper instruction for my children.

I hope to start for Boston, so as to reach there Tuesday morning I shall probably make my head quarters at Salem, and go in to Boston every day — I wish you was to be there, as well as Henry

What can be the matter with Spencer? Is he afraid of the Hippocampus? By the way, did I tell you that I saw the lines finely by the Lowell Instrument and also by lenses belonging to the Cole of Salem — They show them distinctly and I may say easily, while with mine I have only seen them once, and then rather indistinctly and only by peculiar management of the light.

I have not had an opportunity to work much at the Mill Pond stream

and was quite sorry to find on my return from Boston that one half of the matters collected there had become putrescent, so that I could not study the forms while living fortunately I had put the other half into Goadbys solution so that I have the forms still and can look at them at my leisure - There is as I told you almost every thing in the Desmidiaceous line in that Pond, There are also some extraordinary Entomostracans, particularly one whose shell looks as if it was made of large cells like those of vegetable pith. The walls of these cells stand perpendicular to the general surface of the bivalve shell.

The things you kindly sent in your last letter but one, I have yet to study and must postpone reporting upon them until I return from Boston.

I got yesterday several pamphlets from Ehrenberg containing much interesting matter, particularly an account of the "halobiolitic" strata of Barbados where some most extraordinary infusorial remains have been found.

On my return from Boston I trust I shall see you and some of your family here - We have now got servants after being 6 weeks without and can receive you and yours with as much convenience as pleasure

Give to the "Torreyideae" our kindest regards

Yours, ever cordially

J. W. Bailey

LIBRARY OF THE MUSEUM OF COMPARATIVE ZOOLOGY HARVARD UNIVERSITY

xp

West Point. Thursday

Dear Dr

I write this just to keep you informed [illegible] you requested, of Eli's condition He is sinking fast— The Doctor said this morning that he was as near dead as he could be, and that he thought he could not live 24 hours— He cannot speak to any one and does not appear to have his senses, except at intervals— It would of course be useless as well as painful for Miss Torrey to come on now— She can do him no good, and indeed no one can—

Mr Sprole was here to see him yesterday but Eli was too ill to speak to him He does not seem to be in much pain but has great difficulty of breathing I presume when I write again his sufferings will be over

Yours as ever

J. W. Bailey

My dear Friend

I went down to New York last week, and took with me the enclosed translation of a paper by Riesek which I hoped to hand you, in person in N.Y. but as I could not find you in the city, I now send it by mail — The authors views which are almost enough to call up the shades of Linnaeus and Darwin, have yet much more in their favour than at first appears — They certainly deserve a respectful consideration You will find my translation a rather clumsy one, but I believe I have in most part of it given the meaning of the author where his words convey any, and where they do not I have given a literal translation of his words — The part marked "obscure" in the first page is most different to me, but you will see that it not important to the understanding of the I translated this as a German exercise, thinking at the same time, that if we might what could be said in favour of these new views — Have they yet appeared in an English form?

I was much interested also in a paper in the Linnaea on the subject of Rhizomorpha the author shows that all the supposed species can reduced to one the R. fragilis of Pers, — that the phosphorescent quality of the variety nitterranea which grows in mines is possessed by the common variety R. corticalis which grows under bark &c. This I can confirm by my own experience He states that the presence of this plant in mines, is due to the fact that it possesses the power of reviving even after long desiccation, and that being introduced in a dry state attached to the wood used in constructing the shafts &c of the mine, it has there developed in favourable circumstances The phosphorescent power is not due to ordinary decay, for it is only the living plant which possesses it. If you want to see this phosphorescence, you have only to hunt up a specimen (having the young shoots if you can find one) and place it in a tin box, occasionally renewing the air, and when you wish to observe the phosphorescence (in cold weather) you have only to breath upon it in a dark room, and you will observe all the growing parts — I presume that in warmer weather than we can now boast of, the breathing would be unnecessary — The author considers the reproduction of this plant upon the interior fibres of the stem. Give our kindest regards to all your family and pray do bring or send on some of them soon. I have not found any thing yet in the earth you sent from Fremonts plants — but in examining some bits of geological specimens which he sent me I detected some very beautiful specimens of fossil fresh water infusoria in Oregon where the infusoria have several hundred feet of basalt &c above them! — In haste ever yours most truly

J. W. Bailey

NEW YORK BOTANICAL GARDEN HERBARIUM COLUMBIA UNIVERSITY

West Point. April 13 1865

(47)

My dear Friend

I went down to New York last week, and took with me the enclosed translation of a paper by Reinsch "on Rock" I hoped to hand you, in person i. d. y. but as I could not find you in the city I now send it by mail — The author views which are almost enough to call up the shades of Linnaeus and Darwin, have yet much more in them from than at first appears — They certainly deserve a respectful consideration You will find my translation a rather clumsy one, but I believe I have in most part, of it given the meaning of the author where his words convey any, and where they do not I have given a literal translation of his words — The part marked "obscure" in the first page is most different to me, but you will see that it not important to the understanding of the [redacted] I translated this as a German exercise, thinking at the same time that you might [redacted] what could be said in favour of these new views — Have they yet appeared [redacted] English form?

I was much interested also in a paper in the Linnaean on the "Germ of Rhizomorpha the author shows that all the supposed species can reduced to one the R. fragilis of Pers, — that the phosphorescent quality of the variety nitterans which grows in mines is preserved by the common variety R. corticalis which grows under bark &c. This I can confirm by my own experience, the latter that the presence of the plant in mines, is due to the fact that it possesses the power of remaining even after long desiccation, and that being introduced in a dry state attached to the wood used in constructing the shafts &c of the mine, it has there developed in favourable circumstances the phosphorescent power; it is not due to ordinary decay, for it is only the living plant which possesses it. If you want to see this phosphorescence, you have only to hunt up a specimen (having the young shoots if you can find one) and place it with moist blotting paper in a tin box, occasionally renewing the air, and when you wish to observe the phosphorescence (in cold weather) you have only to breath upon it in a dark room and you will observe all the growing parts — Because that in warmer weather when we can more breath on it, the breathing would be unnecessary — The author considers the reproduction of the plant to take place by means of spores which develop upon the interior fibres of the stem. Give our kindest regards to all your family and pray do bring or send us some of them soon. I have not found any thing yet in the earth you sent from Fremonts plants — but in examining some lots of geological specimens which he sent me I detected some very beautiful specimens of fossil fresh water infusoria from [redacted] in Oregon where the infusoria have several hundred feet of basalt to alone them! — In haste ever yours most truly

J. W. Bailey

April 13 - 45

2 pieces only
paid. J.W. Bailey

Dr. John Torrey

Princeton

New Jersey

April 13 - 45

2 pieces only
paid. J.W. Bailey

PAID

Dr. John Torrey.

Princeton

New Jersey

Sculpius
Kranki

48

West Point. August 3. 1845

My Dear Friend

An unusually long period has elapsed, since I have been favoured with a letter from you, and in consequence I am entirely ignorant of all which I would gladly know concerning you and yours. I do not even know your present location, but I presume that this letter will reach you, if directed to Princeton. I expected, long ere this, to have been in New York, and there I could have learned something of your whereabouts. I have myself been kept at West Point this summer by being called upon to act as Bvt-Major - Carpenter &c for a new Chemical Room which is now being fitted up in the room which I should have had some years since, and which Majr. D. did all his power to keep me out of, but which he was finally compelled by the Secretary of War, to yield most reluctantly, to my Department. I, of course, am busy enough for every thing requires my supervision, I hope however to be repaid for the trouble, by having at last an airy & well lighted, and highly convenient laboratory, I wish I had you here to give me the benefit of your experience as to many of the details.

You may suppose what our feelings were, on the reception a few weeks since of the news that Major Delafield was at last relieved from duty at West Point. He is to be succeeded by Capt Brewerton of the Engineer Corps, who is daily expected here. I am not much acquainted with him, but hear him spoken of as a gentleman of high justice and probity of character. I will explain to you more fully the circumstances which led to Delafields departure when I meet you, which I hope may be ere long. It is enough now to say that public opinion was a tribunal which he had not expected could reach him, but which has proved more powerful than he supposed.

We have been without any company all summer and really feel lonesome, Why can you not have the charity to take Mrs Torrey and all the younkers from Miss Jane down, and come and pay us an unceremonious visit. I have Mrs Baileys authority for saying that she can accommodate you all, and that your visit will give her great pleasure.

I am myself not so busy that I could not spend many hours each day in your company, and perhaps I could even get off for two or three days at a time for a visit to Montauge Point Long Branch or any other place where you want to botanize. Do let us here from you soon and if you cannot all come on, at the very least send or bring some of the girls here.

I believe that I have not thanked you for your donation of the sled here. When I wrote last I knew your kind intentions in making the present, but had not learned to appreciate the gift for its intrinsic merits, but the comfort which I have derived from it in the never ending, still beginning tonsorial operations has taught me to value the instrument highly.

My family is generally in good health, my youngest boy however has been quite sick this summer and still looks badly from an attack of Cholera infantum.

How come on the Flora and the Report, I hear the first spoken of by all the botanists I see as the book. Gray 2d edition of his Text Book I have not yet seen, but I know it must be first rate.

I have much to say to you, but had rather communicate it viva voce, I therefore postpone it until our meeting which I hope may be a speedy one

Tell Miss Jane that we rely upon her to use all her influence to get you to come on here with as many ✗ as you choose to bring

Ever kindest regards to Mrs D. and all

Ever yours truly

J. W. Bailey

BROWN UNIVERSITY

I am myself not so busy that I could not spend many hours a
perhaps I could even get off for two or three days at a
Long Branch or any other place where you want to be
soon and if you cannot all come on, at the very least

I believe that I have not thanked you for your donat
last I know your kind intentions in making the present,
the gift for its intrinsic merits, but the comfort which
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first rate.

I have much to say to you, but had rather communicat
until our meeting which I hope may be a speedy one
Tell Miss Jane that we rely upon her to use all her
here with as many ♀ as you choose to bring
Our kindest regards to Mrs T. and all
Ever yours truly
J.

West Point. August 10th 1847
Tuesday

My dear Friend

I have just returned from Ft Hamilton where I have been for 11 days and as I presume you have returned from Boston by this time, I write this to inform you that I hope to start from here on Thursday to visit you for a few days when I hope to have a good talk with you about matters and things in general, and some in particular.

We were disappointed in our sea shore trip, for one or more of the party were sick all the time with Cholera Morbus. I kept well myself and got some nice Algae from the shores south of Ft Hamilton.

Please tell Prof. Henry that I got his note this morning and like to talk the subject over with him soon.

I expect to start alone on Thursday morning, if the weather is pleasant, and shall make no unnecessary delay in New York, so you may look out for me Thursday night or Friday morning

Yours in haste but ever truly

J. W. Bailey

West Point Aug. 13th, 1848

My dear friend

I have reluctantly delayed answering your letter a few days, during which time Mrs B. and I have been trying all possible ways to solve the problem which puzzled Lamartine and Co. so much, namely "the organization of labour." In this age of revolutions our Kitchen Cabinet has revolted and we are reduced nolens volens to a state of "communism" that is pleasanter in theory than in practice. We have now however a prospect of getting a prime minister for the culinary department, tomorrow, and Mrs Bailey now authorizes me to tell Mrs Torrey to come and be most welcome, welcome she will always be, but we want also to make her enjoy her visit, and to do so it is necessary that all the domestic arrangements should be right— these matters would not trouble you and I much, but the ladies will get nervous about them. We shall indeed be most happy to receive a visit from Mrs Torrey and Herbert, and I am sorry that you cannot accompany them. I think the visit here will do them good, I have a covered barouche and a gentle horse and can drive them out every day.

Mrs B. says she is not willing under any circumstances to give up the prospect of seeing Mrs T. so if she will only come prepared for contingencies and ready to share our lot whatever it may be, we again say she will be most welcome.

I have had two a Three weeks of hard work in Washington, where I purchased Mr Markoe's cabinet. I think the purchase a very judicious one at the price $2000. The cabinet includes a very large number of well crystallized and showy specimens, besides rare minerals, and in addition the geological specimens are numerous and valuable. I think I could not have done better than to secure Mrs cabinet at the price I did.

I did not see Wilkes in Washington, which I regret as I meant to tell him that I could not trouble myself any more about Mr Agassiz. It is impossible for me to work them into decent shape, and I must therefore return them free of expense to Washington, and not have any more bother about them. As Wilkes has said that "the Committee had rather not have them described at all than send them abroad for description", it gives me a good chance to return them, and I am anxious to do so, Indeed I should have done so ere now, if I had not feared that you would blame me for acting precipitately.

The new Cabinet will arrive here in a week or two and I shall then have my hands full in arranging it.

I have received from Ralfs of England his beautiful volume on British Desmidieae, and I am glad to see in it a figure of the Micrasterias Torreyi (a splendid species of Ehrenbergs genus Euastrum) which I discovered during that memorable excursion with you to the pond near Princeton and which I have chosen to commemorate the journey. He also gives a list of 69 species of Desmidieae found in a bottle of sediment from that pond which I sent him. The volume is a real beauty, and unlike Hassalls book there is no humbug about it.

I am glad you have got a letter Fremontia than the first, You had better save the "pig weeds" for the father in law.

I do not know what Spencer is about, but I believe he is too ambitious and zealous not to make all efforts in his power to meet his engagements.

I am not so sure that he is wasting his time on brass. There is room for much improvement in the mounting of instruments, and much of the success in working with them depends on a nice adjustment of parts, which at least in the first attempt instrument must be attended to by one who is thoroughly acquainted with the objects to be accomplished.

I saw Henry for a few minutes in Washington, but was too busy to see as much of him as I wished to do.

I have met both Dana and Hays, and was much pleased with both. I am sure I should enjoy a visit to Sandy very much

I have done nothing in the way of microscopy this summer. I must try to make one grab at Algae along the coast of N. Jersey before the season closes.

Our best love to the girls. Mrs B. says June is turning old woman too soon, that it is impossible to set them away from Princeton and its attractions.

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Farewell Yours ever cordially

J. W. Bailey

I inclose the key of Maria's trunk

Fort Point. August 30. 1848

My dear Friend

I got back yesterday morning, and found that Mrs Tovey had been so frightened at the kiss with which I threatened her, that she had cleared out to avoid it. I should have been back the night before, but for a bother about my trunk at the rail road depot which although it got my steam up a good deal did not hasten my progress homewards, but was the means of keeping me until it was too late for the evening boats.

I was disappointed in my visit to Long Branch. I found nothing of interest there, there are no Algae there, and as for the surf I should as soon think of bathing in Niagara as here when the wind is easterly. But I was paid for all & my visit to Greenport there I made some nice hauls among the sea weeds, I found good bathing in a fine [redacted] beach, good air, good

fare, plenty of fish, and fishing - I discovered here a mine of zigzag Staircase which will supply our microscopists with plenty of test objects - On the shores I found Sargassum growing attached to stones, and in great profusion - Almost every specimen was covered with Biddulphia pulchella and other beautiful diseases parasites - I had a grand time, and next year I trust we may plan a trip together and visit Greenport, Sag Harbor and Montauk point.

I have sent to day a trunk to Hastings containing some clothing for Miss Kitty. I have requested him to forward it to your care.

Mrs Bailey cannot come on just now, as a visitor (Miss Black) arrived last night - and it would not be proper for her to leave her guest. Besides she prefers deferring her visit until there is a change in the weather and until her children recover from the indispositions with which they are now

affected. You must tell Mrs T. to manage
Kitty as if she was her own child, and not
let her interfere in any way with her plans.
If any thing occurs, so that it is inconvenient
to keep her longer, you can at at any time
send her ~~home~~ by Hastings to Mrs Hegeman's
No 6. Harrison St. or to Dr Gilman's corner
of Houston & Laurens.

I have a note from England saying that
Bly have <u>at last</u> resolved Spencers last but
only by very oblique light. You must not
scold Spencer too hard, for I believe he is
embarrassed by want of funds, and suffers much
from bad health. I believe him a man of
sterling integrity and great talents, and that he
will meet all his engagements as soon as
possible. Give best love to Mrs T. the
girls and yourself

Ever cordially yours

J. V. Bailey

Mrs. B will not go to Princeton without a promise that
one of your girls will return with her

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY

56

West Point. New York. Dec. 12, 1845

My dear Friend

I hasten to put in your hands the first instalment of Texian plants which ~~last~~ has been placed in my hands by one of the invading army As they were collected late in the year, on a part of the Coast where a Botanist would probably not stay long, it is just possible that there may be something new among them - They were mostly collected by Lieut Eaton who has a decided taste for botany, and who will yet make a good botanist - As he has no book with him except an old edition of Eaton's Botany he may be excused for making some mistakes on his labels - I send all, just as they came to hand, and if you find any thing of interest you can take such specimens as you please and return the balance to me - If it is not too much trouble for you as you turn them over to write on the labels the true names of those which you recognize I would be very glad to have you do so - I send Lt. Eatons letter which will explain more fully why the collection was not better. Please return this, when you send back the specimens which you do not wish to keep - They may be left at Chilton's.

Your letter with its valuable inclosed package came duly to hand - I prize the electrotyped Daguerreotype very highly - I think your explanation highly probable, and so does Bartlett - I cannot however make out the globules under the microscope - perhaps they have run together a little - The light portions are quite distinctly granulated or roughened, and under the microscope look not unlike a Mezzo-tint plate.

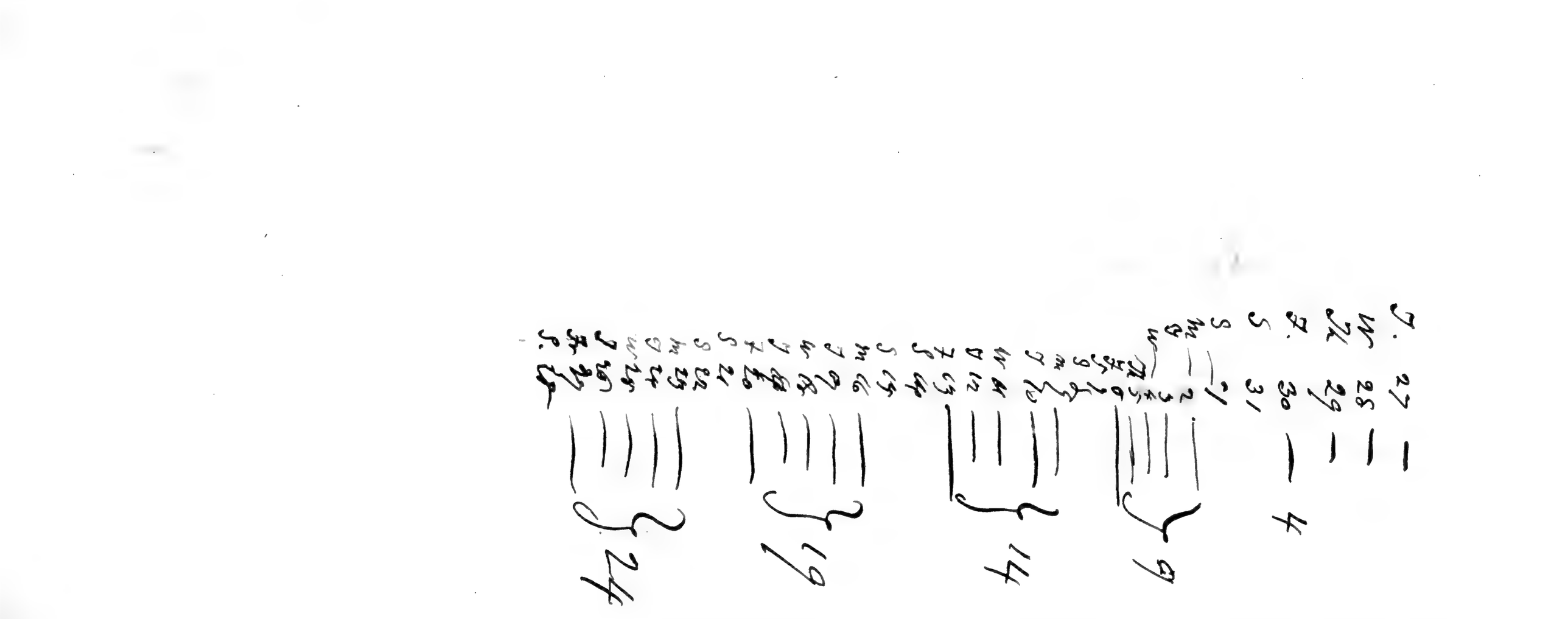
The package of worsted has arrived safely and Kitty was much pleased with it and greatly obliged to Margaret for the neat manner in which she had arranged the colours - We were much obliged to you for your visit, and enjoyed it exceedingly We feared however that the inclement weather made you pay rather dearly for the visit

Since you left Mrs Bailey got a severe fall, striking the lower part of her spine upon a stone door step - She is up and about, but complains much of the pain Give our kindest regards to all your family, and believe Me and Mrs and you will always possess the sincerest regards of

Yours truly

J. W. Bailey





West Point. Feb. 9. 1834

HERBARIUM
COLUMBIA UNIVERSITY

My dear friend

I send enclosed a letter from Lemoumand, addressed to you, which was enclosed in one received by me this morning — I really think you will find him a valuable correspondent, and that notwithstanding his truly french palaver, he really means to do what he promises — Harvey, Curtis, and myself have found him liberal to profusion, and his specimens of Algae sent to me were remarkably fine. He is perfectly ravenous for new plants, but he shares in the most generous manner with those who can enjoy them — I hope that you & Dr Gray will answer the enclosed letter and send him a lot of American plants, I am quite certain you will not regret it.

Harvey sent me a letter from Ceylon, which I received to day, He writes in fine spirits, gives an interesting account of the scenery &c of the island,

and sends one new genus, and one new species of net-work Ceramiae (like Blanden), which are perfect beauties. At one locality on the shores of Ceylon he collected over 100 species, and dried 70 to 80 of each, so you see he is not idle — At the time of writing he was just about to start for Australia where he expects to make a long stay.

Will you ask Hastings to oblige me by copying from Coffins History of Old Newbury (which is in his Library) some 10 or a dozen lines referring to the genealogy of the older members of the Sewall or Seawall family of that place — I cannot get access to the book without coming to the city, and there is a point of some interest to me with regard to the three or four oldest progenitors of that family which I can solve if he will copy verbatim what Coffin says, and send it to me —

We have a sleigh-ferry running regularly now to Cold Springs.

Willy and myself are both well — With kind
regards to all your household I am as ever

Yours cordially

J. N. Bailey

P.S. Tell Jennie that "Cousin Robert" is stationed here
now on duty.

TORREY BOTANICAL CLUB
HERBARIUM
COLUMBIA UNIVERSITY.

GRAY HERBARIUM
HARVARD UNIVERSITY.

West Newton Feb. 13. 11/57

My dear Prof.

One of your ever welcome letters reached me to day and I have just been looking at the things you enclosed which are quite interesting. The specimen marked Entomorpha? is I think a species of Vaucheria, what species cannot be determined. The specimen however is interesting for the mud adhering to it which affords fine specimens of the silicious shells of Terpsinoë musica of Ehrenberg. You will recognise them even under a low power by their forming zig-zag chains of rectangular plates. If you have more of the mud to spare I should like to get it.

The other specimen labelled Melosira? did not furnish me any silicious bodies, but is undoubtedly a fragment of Thorea, probably T. ramosissima Bory. A very interesting plant of which I have seen no other American specimens. I shall send a list of it to Harvey as an addition to our Flora.

I am sorry that you should have been so disappointed in your Microscope. All of Spencers work which I have seen has been so satisfactory, and he has always expressed such a desire for your good opinion, that I cannot understand why your glass was not first rate.

With my own I find no difficulty whatever in resolving the Grammatophora, even the Providence specimens, which are vastly more difficult than the A. Spencerii Gilman's glass will of course show the longitudinals on the Spencerii, for I know by trial that it can be made to resolve the Grammatophora from Greenport which is only inferior to the Providence specimens.

The minute Navicula from near Princeton is probably in a young state. It agrees pretty closely with Navicula cryptocephala of Kützing. It is not valuable as a test, being too easy.

I should like very much to be a spectator at your microscopic meetings. They must be very pleasant. I have been amusing myself (cruel man!)

in trying to freeze animalcules to death, but I can't do it yet. When I make some solid CO^2, I shall see if that will fix them. I have exposed them over and over again to a temperature of 8° F for a whole night and in 10 minutes after thawing they were as active and playful as kittens - I have knocked off bunches of hard frozen moss, from rocks where they had been frozen up for weeks and in 10 minutes have resuscitated large Rotifers, Macrobiotæ, and Anguillulae.

I was much disappointed at not seeing you up here this fall. For ~~although~~ although I could not have talked much, I am great at listening. and I always learn much from an interview with you, to say nothing of the pleasure of social intercourse.

I am just now making figures of new species of Ex. Expedition Diatomaceae of which I have a good lot found sticking to the Algae.

I rejoice to hear that our friend Gray has recovered so well from his severe accident He could not have been in kinder hands than Mrs Harveys - He is full of kindness.

I have just been trying polarized light on Artificial and natural Camphor, If a small bit, (no matter how small) of each be put separately on a bit of glass with a small drop of Alcohol and watched as they crystallize, while illuminated by chromatic polarized light (i.e. with the ~~Ar~~ selenite plate beneath) the natural camphor will give a most beautiful display of colored crystals while the artificial, will show none.

My health has been pretty good all winter, I have not attempted to conduct the recitations and have given no long talks, My throat is still sensitive but is I think decidedly less so than when I saw you last.

Give my kind regards to your family.
Tell Jenny that we are having grand sport here to night on St Valentines Eve.

Yours ever cordially

J. W. Bailey

SURREY COUNTY, VIRGINIA
HERBARIUM

N. P. Jan 17. 1849

My dear friend

I take much pleasure in introducing to your acquaintance my friend and townsman George Thurber Esq of Providence R. I.

Mr Thurber is a zealous botanist and a very estimable man, I believe that your meeting will be the cause of mutual pleasure, and I only regret that I can not join you also. I had a delightful botanical time in Rhode Island with Mr Thurber a few years since, and became convinced that his knowledge of our Northern plants is very thorough

I have a couple of your letters unanswered which I will reply to as soon as I have recieved a little from the fatigues of our Examination. I shall want to consult you about the best manner of treating the faint-

raise with which Quekett has tried to damn
Spencer and on set left the Critic signed
I have all the materials needed to give
him a tremendous excoriation, but my
friendly feelings towards his deceased brother
restrain me, and if I can avoid a controversy
I will do so, although the provocation is
great. Spencer has now a new test
which puts the Spencerii far out of the track
ground, and which John Bull will have
to acknowledge is a little difficult=
De la Rues measurements are stupidly or
maliciously wrong. He makes the distance between
the lines only $\frac{1}{50.000}$ th of an inch which I repeated
of the N. Spencerii
trials I have found them to vary between $\frac{1}{120.000}$
to $\frac{1}{250.000}$ th or to be about 3 to 5 times nearer
than he states. He is all wrong too about
the structure. The lines are valleys between little
prominences as on a nutmeg grater, and are not as

the state due to depression or derangement, but
I will write more at length on this point
to you or Silman in a few days

My heartiest good wishes to you and
your family —

Yours ever

J. M. Bailey

Dr S. Towne

Dr John Torrey

College of Physicians & Surgeons

Crosby Street

New York

I introduce

the Bearer

[July 21, 1847.]

9

Dear Sir,

[illegible] heart is not set upon. He makes it able, and if it be the will of my family I would not consent to leave her, [illegible], I shall feel no disappointment if I do not get the situation as I am not yet [illegible] fit as [illegible] such place in life as I could wish, however a man of [illegible] is glad now a days to ask [illegible] what he wants, - for example, if you say [illegible] he would [illegible] from the [illegible] and he would be ready to [illegible] for a tenancy [illegible] he might [illegible] secure his [illegible] [illegible] suppose [illegible] [illegible] commissioned as a Major General.

Let me know your [illegible] if any I must [illegible] [illegible]

I have just got a letter from Lizzie [illegible] Mathy, [illegible] married correspondent to [illegible], I dead at the age of 32 [illegible] of a bronchial [illegible] [illegible] waiting [illegible]

Ebenezer was [illegible] to attend [illegible] [illegible]

[illegible] [illegible] [illegible] [

Dr John Torrey

Princeton

New Jersey

West Point July 1856
Thursday

My dear friend

I got home from Providence last Saturday, having sent Mrs B. and Kitty to Newport. I saw Thurber in Providence and he told me he had received his appointment and was getting ready for a start — I think he will do well.

I was in Boston part of one day, but saw no one except Dr Gould, and Dr great Swiss ~~A~~ Dr Cutler I saw with his bride at his own house in Cambridge — I like Jennie I do not think much of his taste — Your letter I found here on my arrival, but I had no time to examine Dr Lady Tuckahoe until to day I see no trace of any thing like altered woody fibre, but I find abundance of branching irregular fibres like mycelium threads — These are particularly abundant in the neighborhood of the cortex.

I have no faith in Mr [redacted]'s Story
There are no facts to support it in.

The Calhoun in sands I have glanced at - Some of the crystals appear to have two cavities - Their form is not incompatible with that of Zircon -

Can any of them be Topazes?
I should think if all the sand was as rich as what you send me, it would pay for working.

Eli continues quite sick, he is confined to his bed, and the Dr thinks his case a serious one - He fears a dropsical effusion in the chest.

He is attended by Dr. Cuyler, and with his Mother for Nurse will be as comfortable as his case will admit of.

I have got a new 1/16 of Spencers beautifully mounted like the English ones, with adjustment for covering

glass, ~~[illegible]~~ which he says has an angle of aperture of 160°!— It performs admirably— resolving Pi new test, Pi Grammatophora with great ease. I have also ~~one~~ of N Roberts test plates with 15 bands of lines, Pi finest being 55.000 to Pi inch— It was sent by Dr la Rue who says it is a test for glasses as high as 1/4; while Marshall says "if Spencers new lenses will resolve Pi ~~[illegible]~~ fifteenth band, I shall be convinced of Pier excellence and shall wish him to make me a set"
t. Of course Marshall means Pi highest-power or 1/16— I cannot reconcile Pi two statements— But as for Pi
d. test itself— Pi new 1/16 will resolve it so Pat I ~~could~~ count Pi lines, and it would resolve lines much finer than Pese— Spencer has made an lens for

a Boston gentleman who is delighted with it.

I suppose you have all your family with you now— Give my love to them all— Tell Jennie I saw Uncle Aleck escorting a young lady yesterday, and "they do say" that he is engaged to her. Queen's ale?

I presume Mrs B. and Maria will be absent some weeks yet— I saw Miss Black in Providence and she has joined Mrs Bailey in Newport. They will probably return to W. Otogetha in two or three weeks—

Are you not going to the meeting in New Haven— I do. Do you will?

Yours ever cordially

D. W. Bailey

West Point June 20th 1861

My dear Friend

I am sorry that your very kind invitation which reached me Saturday morning, must be met with an answer which I believe will cause you disappointment, for I know your kindness as well as I firmly believe you will feel disappointed on learning that we cannot visit you this year, as we had so fondly expected to do. On calculating our means, (sorely diminished as you know by recent legislation) we find that we really cannot afford the trip to Princeton, without giving up a visit to the sea shore in Rhodes Island which appears to be absolutely necessary ~~for~~ for the health of our whole family. We expect to leave here for R. I. somewhere about the 6th of July, and to be gone some 3 or 4 weeks

Before we go we hope you and yours will visit us. We have no company now and would be most truly delighted if you will come, one and all

that you may not reckon "without your host" ~~that~~ or rather your hostess, I have consulted Mrs Bailey, and she says she can, without any inconvenience at all, stow away the whole party. So dont hesitate to bring all hands. Examination is now over, and I am a free man again, I have a good horse, a comfortable wagon and have planned several pleasant excursions with you, if you will only come on,

I received a letter recently from Boy de St Vincent asking for ~~my~~ ~~photographs~~, and he says you had mentioned me to him as one interested in these matters. I am afraid he will not get much of interest from me, still I must endeavour to send him something, if it is only for your sake.

I rained so incessantly last month that I was unable to go out for the Tallimeria which you requested me to send you, and the labours of the Examination have kept me embarrassed ever since.

Our kindest regards to your family. Please write soon and say you will come immediately

Yours in all sincerity

J. W. Bailey

TORREY BOTANICAL CLUB
HERBARIUM
COLUMBIA UNIVERSITY.

Dr John Torrey

Princeton

New Jersey.

My dear [redacted]

I received your letter enclosing Pr check for $38 four dollars and I send you her receipt for the amount. With regard to Ellis things which you mentioned Nancy says that she does not wish to have them sent here, and you can dispose of them in any way you please.

I was disappointed in seeing so little of you in New Haven and quite surprised to find you reported as "non est inventus" when your paper was called for. The Meetings are now such crowds that they have lost much of their charm for me. I am glad to hear that you are likely to have your microscope soon. I think Spencers lenses are superlatively fine, and I doubt not his hom work will be good enough I know nothing about his prices, nor the style of his large

you me even more to do than my health will permit me to do well. If I should wish such a book, I should confine myself solely to the microscopic wonders of [redacted] the organic inhabitants of fresh water, a field at least as rich as the sea can afford.

I am at present very busy moving and arranging our Cabinet I do not attempt to conduct recitations, but I attend the rooms frequently, and occasionally give short explanations. My voice does not improve much if at all, I find that I have to be very taciturn even in my intercourse with my friends

Miss Black and Mary Ingham are now with us, and Major Lecante is at the Hotel.

You allow us to hope that you will pay us a visit ere long I hope you will do so, for it is a long time since I have had a chat with you — The Ladies send their kind regards to you and your family — Where is Jennie now? Give my love to her and the other girls — With kind regards for yourself and Mrs Tory believe me ever cordially

Yours J. W. Bailey

West Point. March 8th, 1848

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LIBRARY
UNIVERSITY

My dear Friend

You told me I had kicked the fat into the fire in the affair of the Expedition in Algae, and now you have thrown it back upon me all blazing hot, and how I am to escape without being flayed alive I hardly know.

I got a letter from Capt Wilkes yesterday in which he says that at the suggestions of Dr Torrey he has sent me by Adams's Express the box of Algae, and he asks me to inform him as soon as possible ~~upon what terms~~ what compensation I desire for the trouble of describing them.

Now, let me tell you that if an avalanche had fallen upon me I could scarcely have been more dumb founded - I should have some hope left of digging out, but how I am to dig out of this heap I hardly know. All depends upon Harvey, and I was in hopes to be able to consult him before any steps were taken to get the Algae into my possession. If he is unwilling to undertake the job, I will have nothing to do with it. It would be as absurd for me to attempt it, as for a man to try to translate Homer who only knows the Greek Alphabet. Why, the collection according to Wilkes's list is from all parts of the Southern Ocean, and yet I have not access to a single book or authentic specimen ~~that~~ to guide me in determining them,

I am anxious to know what answer to make to Wilkes, and for that purpose I must know what understanding he had with you - I dont see how I can answer him definitely until I hear from Harvey, and yet I hardly know how to write to Harvey until I know what terms to offer him, I can only act as an agent in the matter, the authorship must all be his, and so should the compensation be. I confess I am very nervous about this job, and wish myself clear of it. Please write at once and tell me how to steer between Scylla and Charybdis.

You note that our friend Dr Gilman can do nothing with the Navicula Spencerii I suspected before, that he had met with some ocular deception in his first supposed view of the cross lines. ~~The [illegible] that~~ The objective made for me by Spencer showed the lines on the N. Hippocampus, N. Baltica and the difficult Nanneis with so much more ease than any other lenses that I had ever seen, that I could not account for their not showing the lines on the N. Spencerii easily if Dr G. could see them at all with his. For some time I could not succeed in seeing their lines at all, but by following Spencer's directions, and working without the mirror I succeeded in getting distinct views of the lines all over the face of the shell, on several different individuals and on different occasions. I have since succeeded twice in seeing the same lines while using daylight and the mirror. If therefore there are any sceptics in N. Y about the existence of the cross lines on the N. Spencerii, and my word is worth anything with them you may assure them that the occurence of the fixed cross lines precisely as Spencer figures them is a "fixed fact." Do not imagine however that it is an easy task to show them. It requires the nicest adjustment of the focus and the light. I can engage to show any one the lines on the Hippocampus, Baltica or even the most difficult Nanneis in less than three minutes trial, but I would not like to promise to show the lines on the N. Spencerii in as many hours, although I might by accident show them at the first trial. Their fineness is almost inconceivable they are certainly less than the one hundred and twenty thousandth of an inch apart. — I am very sorry that my statement of my success in resolving these lines was not in time to appear in the number of Silliman just out, however the circumstance with which I have given my testimony may add to its value with some persons, and keeping back the climax of praise until it could be given under circumstances is after all the best thing for Spencer's interest.

Are any figures of the Expedition Algae to be published? Is microscopic analysis to be given? Are the parasitic Diatomaceous bodies which I may detect on the specimens to be described? In what time must the job be accomplished and what is to be done if Harvey's engagements cause him to decline the job? Do let me know all about this and Miss relieve from much anxiety

Your sincere friend

J. W. Bailey

HERBARIUM
COLUMBIA UNIVERSITY.

Dr. John Torrey
College of Physicians & Surgeons
Crosby Street
New York.

57

West Point. March 15th. 1847

My dear Friend

The pleasure caused by the reception of your letter, was enhanced by learning from it that you were all well, We have had a good deal of sickness in our family for some weeks back. My three boys were taken one after another with Scarlet Fever, and our house became a perfect Hospital, The cases though severe were not fatal, and I trust no permanent injury to the childrens constitutions will result from them, My little girl escaped entirely. We are now all pretty well and looking forward with pleasure to the opening spring - Yesterday morning we heard the welcome sound of the Steamboat bell on the plain, announcing the day trip of the Highlander - I do not feel inclined to move from West Point however until the snow gets off the hills - In two weeks the Hepatica ought to be in bloom; and then, as you say, Huzza for Botany, I am bent on ransacking all the mudholes in the country, for my little pets the fluviatile Algae, and those strange things the Desmidiaceae - I have had several letters from Ralfs of Penzance Cornwall who is about to bring out a large work on this subject, and to answer his queries I must go at our species systematically - Almost every new locality furnishes some novel forms - I have recently received from Harvey an acknowledgement of the reception of a lot of Algae which I sent him through Gray. He seems greatly interested in them, and gives much useful information with regard to them - Several things that had puzzled me he pronounces new. I intend to supply you with authentic specimens of every American species I can procure.

The parcel which you have kindly left for me at Wiley & Putnams I will get some of my friends to call for - I am sorry to hear that the Smithsonian, is to be injured by the mortar mania - I do think that huge architectural piles ~~etc~~ whether in the shape of churches, colleges or regal palaces are remnants of barbarism, to be classed with the pyramids - mere mementos of waste of time and

human labour — I have seen so much of this building phrensy shown by our Engineers that I am perhaps ultra in my opposition to it.

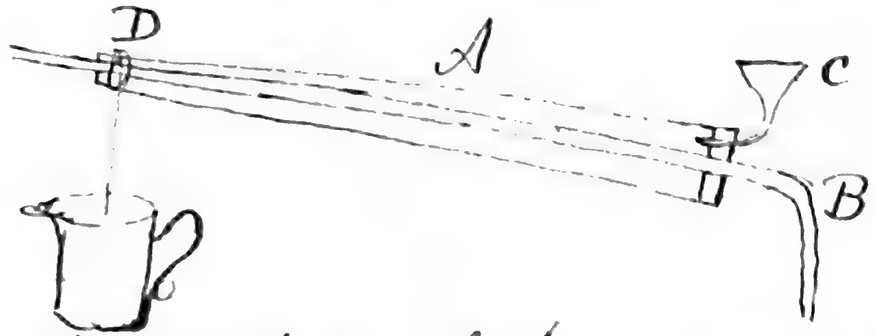
Mrs Bailey is delighted to hear that there is any possibility of your returning to New York — She says New York is not like the same place to her, since the Hotel at corner of Prince & McDougal St has been closed. I hope I may be able to steal off some time this spring and drop in upon you at Princeton with Mrs Bailey or Maria. We often talk of a plan for you, to spend your summer (all hands) keeping house at West Point in our domicile while we are away — What thinks your good lady of it? The girls I know will vote for it. You would have our cow, and horse, and as for marketing I assure you. But it is possible to masticate West Point beef if you apply Leyells great agent in geological changes "time enough" to the task.

The oceanic dust you allude to, is I presume similar to some sent me by Chilton a few days ago, collected by Mr Lenbank, I could detect nothing organic in what was sent, which however was a mere stain upon paper which had been rubbed against the reddened rails, (A poor way to collect as could well be hit upon) — In a pamphlet which I got recently from Ehrenberg he gives the results of his examination of oceanic dust collected by Darwin in the Atlantic in 15° 19° to 21° North Lat. and hundreds of mile from land (the nearest being the Cape Verd islands) — He detected 67 organic forms chiefly siliceous fresh water infusoria and three two of species not peculiar to Africa, but to South America! He remarks that Meyens supposed plant Aerophyton atlanticum is only this dust deposited on the morning dew drops ("Thau perlen") — You omitted to inclose a piece of the paper but I doubt not it is just like Chiltons.

I am just getting through the course of organic chemistry, and shall commence review in a few days, and shall then have more leisure than I now have. I have lost my excellent assistant Capt Kendrick who has gone to Mexico to join

his company, and in case he wins any distinction his reward will be to see some miserable drunken, dishonored loafer or fat house politician sport a Major over his head.

I believe you have one of Liebigs condensers, but even if you have I think you will like the following simple modification, as its transparency allows you to see how the condensation goes on, and at the same time it is a cheap form.



Take one of those scarce articles the neck of a broken retort A, close its big end with a cork into which are cemented the condensing tube B and a common glass funnel C whose neck you bend at right angles, a string tied around at D leads the water that runs out down to a vessel to collect it. The amount of cold water necessary to introduce at C can be judged of by watching the condensation in the neighborhood of D.

I have had one short letter from Lawrence this winter, but I did not expect more, as I know how hard he is at work. If you catch him, bring him up here. The river is now open and you can run up any time.

Give my kindest regards to all your family

and believe me ever

cordially yours

J. W. Bailey

BOTANY CONSERVATORY HARVARD UNIVERSITY.

Dr. John Torrey

Princeton

New Jersey

West Point. March 30th. 1846

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HERBARIUM
COLUMBIA UNIVERSITY.

My dear Friend

Your letter crossed mine somewhere on the way between here and Princeton, so that I could not learn from it, how you liked the dotted ducts in Anthracite, or indeed whether the specimens I sent you reached you safely. I have heard from Gray who writes thus "Your fine large dotted ducts have reached me, and my admiring eyes have gazed upon them" - He wants me to make up a paper for the Academy of Arts and Sciences, and I think I shall do so, the brief notice which I have sent to Silliman being too hasty and imperfect in many respects. I have got a great lot of fine specimens of these curious stumps, and when we meet you shall have a good supply. Now, as to when we meet, it will depend much on your own arrangements - I feel strongly tempted to invade your peaceful domains very soon, and unless you declare a non-intercourse law, I shall be very apt to take up my line of march without delay - I think I might get off from here next Monday, and have a leave of absence for a week - How would it suit you, to have me come then, Let me know frankly, I shall come alone this time, as it is hardly warm enough yet for the children, and Mrs B. has that thing to do which I am glad to escape from. viz house cleaning - Please write, on the reception of this and say whether I shall come next Monday or Tuesday - I can just as well put off the visit a week or two

to you, if you wish.

I have just been up on the side of Mt Greylock, and have found abundance of the Hepatica, which really makes me feel as if Spring had at last come. I suppose your spring is a week or two earlier than ours.

I hope we may be see you and have a regular old fashioned chat, that I reserve much I have to say for that occasion

Please write as soon as you receive this, and if you say come I shall start, (if the weather is favorable) from here on Monday and if there is any afternoon train I shall perhaps be able to get to Princeton the same day, or at any rate the next morning.

Bartlett intended to join me in this excursion, but he thinks he will not be able to, on account of his wife's health.

Yours very truly

J. W. Bailey

LIBRARY OF THE MUSEUM OF COMPARATIVE ZOOLOGY
HARVARD
COLUMBIA UNIVERSITY.

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY

West Point. May 29th. 1847

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My dear friend

I should not have waited for a reply to my last, if I had not entertained the hope that long ere this I should have had the pleasure of a personal interview and old fashioned chat with you, I have called twice at the College in Crosby Street hoping to catch you in the City, but have missed you each time. I have a good many things I want to show you for I have had favors showered upon me with great liberality by my English correspondents. The last steamer in particular brought me a number of packages containing small but precious objects sent by Quekett, Ralfs, Marshall, Jackson & Topping, all of whom are lovers of the Microscope, the two latter are I believe manufacturers, and supply the London venders with all their choice things. Among the beauties sent me were some preparations of horns, hoofs and other organic bodies which when seen by polarized light with the addition of a "Selenite plate" give most magnificent displays of colouring, arranged in beautiful and symetrical forms. A preparation, sent by Matthew Marshall (Cashier of Bank of England) of the silica in cuticle of Equisetum is very beautiful by polarized light. From Harvey I received a lot of choice British Algae, not the common every day species but some of the very rarest of the British Septum. I have also got 13 Numbers of his elegant work Phycologia Britannica which I shall be glad to show you. With to the subject of Algae let me thank you for your kind offers concerning the Algae of the Exploring Expedition. I think a few remarks will convince you that I ought not to meddle with them. I will not pretend that I do not know as much about Algae as any one in this country, for I know no one who has devoted so much time to them as I have, Having said this, you will not think it any affectation of modesty in me when I declare myself entirely incompetent to arrange and determine the Algae of a region containing plants belonging to tribes and genera entirely different from any which I have had an opportunity

to study — Plants, many of which have doubtless already been described and figured in costly foreign works to which I can never hope to have access, and which could only be properly handled by some one like Agardh, Harvey or Montagne to whom all Nepthunes productions have been familiar for years. As Harvey has been lately engaged on the Antarctic Algae, I think the specimens collected by our Expedition ought to be put in his hands, and there is no reason why I should meddle in any way with them, Am I not right?

I will add one more argument. I lately had a lot of Key West Algae sent me for determination, and I found at a glance that I was out of my latitude, Our northern plants with which I am tolerably familiar are quite different. I found N. southern ones to belong to genera which had never before met my eye, and although I could recognise a few such as Padina pavonia, Anadyomene stellata &c a great number were such as I could not determine and I accordingly sent them to Harvey. What then could I hope to do with Antarctic plants?

I have made some thin sections of your Tuckahoe but I can find nothing definite in the way of fructification, The Nepenthes wood is chiefly remarkable as you state for the abundance of spiral vessels, I notice no other remarkable character.

I have had two letters from Mr Spencer of Canada, and if his lenses will perform as stated they must be equal to best English ones. He writes like a man of good education and gentlemanly feelings, and if his lenses are what he states we ought to take pride in him as an American, and do what we can to make him known, I long to try his glasses on a specimen of the Navicula Hippocampus of which I have a specimen sent from Manchester England as the test object for excellence for high powers, It has lines upon it which my highest Oberhäuser lenses will not give a glimpse of, by any management which I can apply. The impress whose outline Mr Spencer aptly compares to "the walking beam of a steam engine" is I presume the same as my fig 23 Pl 11 Am. Bac. to which Ehrenberg has tacked my name, as Stauroneis Baileyi; There are however several closely allied species differing

in Ben Lubrat outline, and probably in Ben minute lines - However I have not yet met with any of Ben on which my powers will show Ben delicate markings mentioned by Mr Spencer. When you come up, will you not bring up your object glass, and also Ben specimen of Marine Infusoria that we may look at Ben together.

I regret to hear that Agassiz has broken himself down, I had hoped to see him and you at my house e'er Ben, and shall still rejoice to see you whenever you can come, Ben Examination commences next week, and during Ben time I shall be of course confined every day until 4. P.M. and Ben comes vacation for which as yet I have formed no fixed plans. So if you have anything to propose in Ben way of excursions by which we can get together with Agassiz and any kindred spirits let me know and I will try and join you. You can at any rate bring him up here, and we can Ben arrange a short campaign together, such a a trip to Ben Catskills, a journey to Ben Coal fields &c &c.

We have not yet got through our season of sickness, My eldest boy is just recovering from Ben measles, and we are in daily expectation of seeing Ben others attacked with it, We have had hooping cough, chicken pox scarlet fever, and now Ben measles, What is Ben left except mumps?

We all long to see your dear family, for all of whom we feel Ben most cordial regard - Our love to Ben all as well as to yourself.

HERBARIUM
COLUMBIA UNIVERSITY.

Yours truly J. W. Bailey

I have not yet looked at Ben debris of Calycanthus, but some years ago I studied its bark chemically and found it to abound in Polychrome or Aesculine, whose alkaline solutions gave beautiful displays of colour.

When you come here I can divide some of my microscopic objects from England, with you.

Your package of Polysiphonia, Conferva &c came safely to hand

TORREY CONSERVATORY
HERBARIUM
COLUMBIA UNIVERSITY

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West Point. Oct 26th. 1878

My dear friend

Your joint letter with Gilman, more than realized the idea of "two single gentleman rolled into one", and if I was not now in that vulgar predicament "a hurry" I would try and plat myself into two and endeavour to give you an answer in the same style as your funny epistle.

You will see by the enclosed that I have said all the harm I knew of you, and if you are too modest to read it, turn it over to Mrs Torrey who will be able to judge whether it is in the right form.

The girls Torrey & Gilman are enjoying themselves very much apparently they pretend to be above the grey coats and bell buttons, but nevertheless smile very graciously upon them when the blue coats are out of the way

We find Jeannie a very pleasant companion and are in no hurry to get rid of her, so dont be uneasy.

In answer to your inquiries about the traps needed with a microscope, I presume your own experience has been about the same as mine. I find the large Chevalier more convenient for general use than any that has come in my way, this may be prejudice due to my having become habituated to motions in that, which I miss in others, I am sorry that you parted with the one you had for with that, and an eye piece and objective made by Spencer you would have been completely equipped. If you order another of Chevaliers, you must bear in mind that his lenses are greatly inferior to Spencers, Ross's, Powells or Smiths. A London correspondent writes me that they would not in London take Chevaliers lenses for gifts. The London instruments are very excellent but are enormously expensive. It is too bad that Spencer cannot quit the brass, and turn out his instruments at once when there is such a pressing demand for

for first rate lenses. His glasses are really of extraordinary merit and will do with ease all that the very best English glasses will do. With my 1/16th I yesterday got a distinct and unmistakeable view of both longitudinal and cross lines on the Navicula Spencerii at the same time, in a specimen mounted in Balsam! A London friend who has been buying on this object with the best London glasses says that if Spencers lenses will show both sets of lines at once & on a dry specimen (not in balsam) and by central line, that would be enough to establish him as one of the first artists in the old or new world. Now the lines are vastly more difficult to see in balsam than on the dry specimens, and although I used oblique light in seeing them with my lens, the glasses now made by Spencer are said & him to be so much better that I have no doubt that they will easily show the lines in question & almost any light and whether in balsam or not.

If you order the Chevalier instrument I would reject the 2 or 3 highest eye pieces and the highest objective as useless, and trust to Spencer to get better ones I would not order the Chemical apparatus, nor the polarizers. A good compressor is very useful, I like also Chevalier's glass stage. I would have the mirror so that it could be run up very close to the stage, and also so that it could be swung round so as to get very oblique light. I have my mirrors mounted on movable stands and find them very convenient in getting at once the proper light for delicate lines.

I am heartily glad that you allow me to hope you will come up at least by Thanksgiving, & we know of course that you and Gilman will be heartily welcome.

Have you had any experience with rotten india rubber goods? A piece of cloth was just into my hands yesterday by Capt Brewerton, which was part of one of the pontoons or boats used by the Sappers and Miners in Mexico. The fibres of cloth covered & the indian rubber were deprived of all tenacity so that the cloth would tear with the greatest ease in any direction. I separated some of the fibres and subjecting the presence of Sulphuric acid I applied them to my tongue and found them very

sour, They also reddened litmus powerfully, and gave when boiled in water a solution which yielded an abundant precipitate with Nitrate of Baryta. Was this acid generated when the mixture of Sulphur and Caoutchouc was first made and applied to the cloth, or is there a slow oxidation of the sulphur by the oxygen of the air permeating the thin coating of the mixture applied to the cloth? - Would soaking the cloth in weak lime water or other alkaline solution prior to the application of the composition prevent the injurious effects of any acid which might be developed? These are points of much practical importance, for the use of these boats must be discontinued if this "rotting" cannot be stopped.

Jeannie is writing to you, so I leave her to tell her own story about her trip to the Cross Nest yesterday, and the gallant young Engineer [illegible] who escorted her. My kindest regards to all your family

Yours ever cordially

J. W. Bailey

SCIENTIFIC CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

Dr. John Torrey

College of Physicians & Surgeons

New York

West Point Sept 3, 1837

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

My dear friend

Your note with the Texas scraps is just in hand, and that I may not be as remiss as before, I will report at once.

No 1 and 4 are Batrachosperma moniliforme var. Borgesanum Ag.

" 2 is the old and battered condition of the same

" 3 = Batrach.m moniliforme - young

" 5 = Thorea ramosissima

The things sent before are of the same species. Attached to some of them are good specimens of the ciliceus shell Terpsinoë musica.

I am glad you liked the Albany gathering - To me the pleasure is greater out of the hall, than in. The renewal, or making of valuable acquaintances, and the observation of the green streaks

the different Specimens of the genus Homo constitute - the chief attractions to me. As to the papers, I expect to read them at my leisure at home.

You have indeed a serious job before you in moving - but I trust you may find yourself "fixed" (in both senses of the word) and to your liking. We are all well except Kitty who has a bad cold just now - Duties have commenced and we are talking to the boys about cohesion, crystallization &c. I work just as little as I please, having zealous assistants, who are willing to relieve me from all drudgery.

I have just been looking at some of the Entomologists discovered by Leidy in the Delaware - They are minute, but almost

invariably present— I noticed some most curious Entozoa, among them a nematoid worm

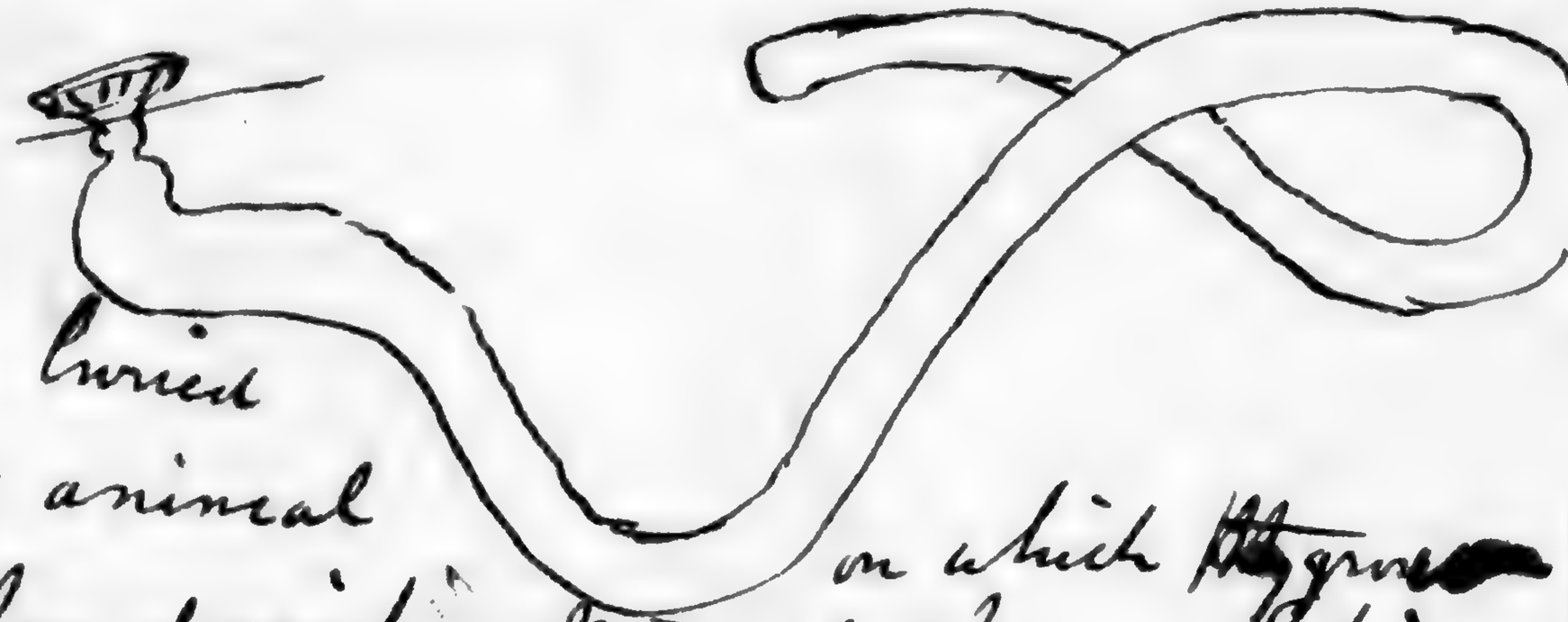


of this shape, attached to which were hundreds

of an [illegible], a Spirozoon looking at first like long hairs

as in the above figure, but in reality creatures

of this shape



with a head like

an Echinorhynchus buried

in the flesh of the animal

I think Leidy has described these, but I cannot find

his paper. Should the Mic. Society want

some of the living Trilobeans containing these

things I can send them down by Express.

I was right sorry that "Lize" would

leave us so speedily — Give my love

to her and the little girls — with kind

regards to Mrs Torrey

Yours as ever

J. W. Bailey

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

TORREY BOTANICAL CLUB
HERBARIUM
COLUMBIA UNIVERSITY

West Point N.Y. Sept 6 1837

Dear Doctor

I enclose a note asking the girls to come up on Monday. My health is better than when I wrote last, my boys have left for College and my house is in better order, so the girls can come under better auspices than when they made their last before, and I shall be very glad to have them here. I shall have to be very taciturn, almost dumb indeed, but that need not prevent them from enjoying a visit, and although I cannot talk much to them I can listen with pleasure.

If you can run up with them here I shall be glad to see you, and with the girls so that to you, you will not find it so dull as you would if you had me alone for your companion — My throat is improving but requires me to be very quiet as far as

speech is concerned.

I see the American Association has appointed me President of the Montreal Meeting. This is a great and truly unexpected compliment. As you have held the same position I may say that I think it the highest compliment which can be paid to an American man of science. But, alas! what can I do to make a return for the honour. If I only had my voice, I feel that I could do the duties of the station, but I have no idea that I shall be well enough to officiate as Chairman, I should have declined the election if I had been present at Albany, as it is I shall probably have to turn the duties over to the Vice President.

I am sorry to say that Major Delafield is ordered here again as Superintendant. Former experience of his character, has as you know not impressed one remarkably in his favor.

I shall look for the girls on

Monday 8th & 9th instant, and they need not write unless something unexpected should prevent their coming.

Yours very cordially

J. W. Bailey

FORKEY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY.

TORREY CORRESPONDENCE
HERBARIUM
COLUMBIA UNIVERSITY
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Nat Bridge Sunday eve.

My dear friend

The Doctor who is attending Eli wished one when I was writing to you to enquire something about the treatment of his disease before he left Princeton, and particularly whether he had taken much Calomel -

He does not improve any, and is certainly in great danger - The respiration in one lung appears to be suspended, and he has decided dropsy in the abdomen. Poor old Nancy is almost worn out nursing him, and it seems impossible to get any body to help her.

Mrs Bailey and Kitty continue about at Newport - The latter had been sick again when I last heard from

her but was getting better,

My kind regards to all your household

Yours hurriedly yet truly.

J. W. Bailey

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